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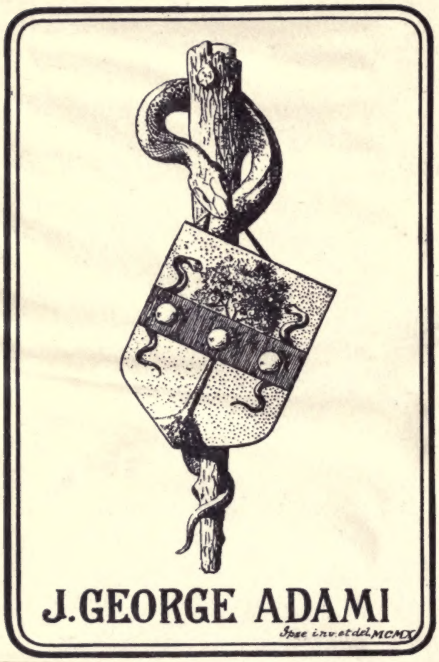

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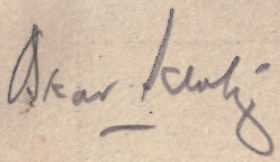

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CHARLES WHITE

OF MANCHESTER (1728-1813)

AND

THE ARREST OF PUERPERAL FEVER

CHARLES WHITE, F.R.S.

From the bust by E. G. Papworth, in the Royal Infirmary, Manchester, presented by Charles Jordan, 1886.

Photograph by Warwick Brookes.

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A

CHARLES WHITE

OF MANCHESTER (1728-1813),

AND

THE ARREST OF PUERPERAL FEVER

being the
Lloyd Roberts Lecture
Manchester Royal Infirmary
1921

BY

J. GEORGE ADAMI,
C.B.E., M.D., F.R.S.
Vice-Chancellor of the University of Liverpool.

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UPON PUERPERAL FEVER

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CHARLES WHITE

OF MANCHESTER (1728-1813),

AND

THE ARREST OF PUERPERAL FEVER

I

INTRODUCTORY

BY his Will, the late Dr. David Lloyd Roberts, who died 27th September, 1920, at the ripe age of 86, left to the Manchester Royal Infirmary, with which he had been associated for thirty-five years, the sum of £3,000 and—to quote the Will—' an additional sum of £500 upon trust to invest the same and to apply the income each year in payment of an honorarium for the delivery of a lecture (to be called the " Lloyd Roberts Lecture ") on any subject of Medical or Scientific interest, each Lecture to be delivered by such person in such place and to such persons and subject to such regulations as the Institution administering the trust legacy may in its absolute discretion determine.'

It is in accordance with that bequest that I was called upon to deliver the first of the Lloyd Roberts Lectures. As an old student of the Manchester Medical School and house physician of the Royal

Infirmary; as one who was a student under Lloyd Roberts; and perhaps more especially as one who is neither an obstetrician nor a gynaecologist, I could not but appreciate greatly the honour conferred upon me in asking me to inaugurate the series of lectures which will keep green the name and fame of one who in his time was a leading Lancashire obstetrician and gynaecologist. Furthermore, as an old student it touched me closely to be thus remembered; as one who knew Lloyd Roberts it was good to undertake this pious duty, and in the third place—although I cannot say for certain that this is the case in the present instance—often it happens that he who beholds things from outside sees more clearly the trend of affairs than those who are in the very midst of them. Wherefore possibly I who had for so long been away from Manchester and indeed from medical practice, might be able to place before the practitioners of Manchester and district, with a certain amount of clarity, what the outer world thinks of matters obstetrical and gynaecological here in Manchester.

Lloyd Roberts was indeed a personality—a humorist, in the sense of Ben Jonson. He was himself, and like no one else in the profession: at once blunt and sharp, as poignantly direct as he could be quizzically evasive; a Welshman, with all that that implies, but before all a Lancashire man, rough in manner and in matter, yet loving and surrounding himself with objects of beauty; full of wise saws and homely wisdom, so that his sayings have become proverbial;

Doric in speech, yet given to the best in literature, rejoicing above all in the choice phrasing and noble language of the author of 'Religio Medici,' of which work, indeed, he edited a well-known edition; devoted to his profession yet shrewd in business—some would say to the limit of shrewdness; careful in small things, yet careless of still smaller—fashions, for example; generous on a large scale, as shown by his Will, and not incapable of perversity; a good—or some would say a wicked—hater. It was the strength and originality of his character, coupled with his knowledge of humanity, and particularly of femininity, rather than his contributions to the advance of his subject and their originality, that impressed the student, and for long years gave him his very real influence and standing among his colleagues. What he wrote was clear in expression and sound in doctrine, even though, as we students thought in the 'eighties, that doctrine was not quite the latest.

It is marvellous what mixtures we mortals be: it would be difficult to meet with a quainter, more delightful medley than that of which Lloyd Roberts was composed. One's memory of him is, as it were, of a ripe old Burgundy that must have been rough and strong and heady in its youth, that had mellowed until full of aromatic ethers but that, with all its bouquet, still smacked of the soil.

It seemed to me that I could not do better than inaugurate this series of lectures with an historical study, taking as my subject part of that which Lloyd

Roberts made the topic of his last important address when President of the Section of Obstetrics and Gynaecology at the Manchester meeting of the British Medical Association in 1902, namely, the Manchester School of Obstetrics and Gynaecology, and its rise.

I am indebted to the Journal of Obstetrics and Gynaecology of the British Empire for permission to re-publish this lecture in book form. In so doing I have subjected it to slight revision and have added certain notes. It seemed, further, that it might interest readers to be able to refer to Charles White's full statement regarding Puerperal Fever; I have thus reprinted from the first edition of his work on the Management of Pregnant and Lying-in Women the chapters on the causes and symptoms and on the treatment of Puerperal Fever, and certain paragraphs from other chapters directly bearing upon the matter of the lecture, along with the Appendix to the second edition of 1777 which contains so much of importance that I have reproduced it in full. This, I find, was also published separately for the benefit, I take it, of those who possessed the first edition. I have collated all the editions published before 1800 and find that they are identical save (1) for minor variations in printing, (2) for the Appendix here given and (3) for the paragraph regarding antiseptic injections added to the third edition of 1784 and cited by me on p. 22.[1]

1. I am greatly indebted to my cousin, Dr. E. Bosdin Leech, for providing me with these editions as also for the photograph of the bust of Charles White which forms the frontispiece.

II

Charles White, the Pioneer

'Too often,' said Lloyd Roberts in his opening remarks at the meeting in 1902, 'do we forget those who first force their way along unknown paths which in the future become well-frequented thoroughfares; who first point out to what important ends such paths may lead; who persevere through weal and through woe, through opposition and calumny; who never falter in their struggle along the paths they see dimly traced before them, or even when they must needs grope blindly along the absolutely unknown; too often is the honour due to these pioneers pushed into the limbo of obscurity by the very weight and magnitude of the chain, the initial links of which they themselves had helped to forge.'

It is but lost labour to attempt to develop either a University or a Medical School without local pride and local patriotism, and to establish that pride and that patriotism before all things it is necessary to build up and cherish the history and traditions of the school. What is more, in these days, with the ever-increasing burden of new knowledge and new developments that have to be mastered, for right thinking and the appraisal of values, in fact for the pigeon-holeing of that new knowledge in its proper place in the brain, it is increasingly essential for teachers as well as for the taught to gain and to possess—if I may be permitted to mix metaphors—a correct historical perspective.

In the Manchester School of Medicine there is no department that has a finer tradition and history than that of Gynaecology and Obstetrics. Manchester may well be proud of the great new-old Infirmary, of its new and commodious installation, of its old renown. But I would have you remember that the man who was responsible for its foundation will go down to history as a great obstetrician, nay as one of the greatest—Charles White, the friend and fellow-student of John Hunter[1]: Charles White the distinguished surgeon who first excised the head of the humerus and both articular surfaces of the joint for caries, in place of amputation, who used dried sponge to arrest haemorrhage a century and more before Sir Victor Horsley: the 'Father of Anthropometry.'[2]

In 1752, White, before he was twenty-four years of age, with the financial support of Mr. Joseph Bancroft, rented a house and converted it into a small hospital, the first public hospital established in Manchester, and carried it on with such success that in 1755 it gave place to a larger new Infirmary of 40 beds with the founder as chief surgeon, a position he held for 38 years.

1. After serving as apprentice to his father, White, at the age of twenty, went to London and there attended the course of lectures upon Anatomy given by William Hunter, the elder of the two great brothers. It was this same autumn that John joined his brother, and not merely attended the lectures but helped in preparing the illustrative dissections. At these lectures began a friendship between Charles White and John Hunter which was destined to continue through life. It is interesting to note that from London White went for a short period to Edinburgh, where already the first beginnings of a school of obstetrics were showing themselves.

2. See Brockbank, *The Honorary Medical Staff of the Manchester Infirmary*. Manchester: At the University Press, 1904. p. 49.

White was thus the creator of the Royal Infirmary. His bust in marble forms one of its treasures. In like manner he was the moving spirit in the establishment of the Lying-in charity which has developed into that great institution, St. Mary's Hospital. White also took an active part in 1783 in the establishment of the first College for advanced education in the provinces outside the old Universities—the College of Arts and Sciences—in which he and his son delivered the courses of lectures in Anatomy.

I am not going to detail to you the life of Charles White: has it not been studied and described in late years by Lloyd Roberts, Cullingworth, Whitehead, and Brockbank? The medical history of Manchester may well be said to begin with him. Not but that I am strongly tempted, for from my boyhood, when I sat Sunday after Sunday under his memorial tablet in the old Parish Church at Ashton-upon-Mersey, Charles White has been one of my heroes. In those early days I could only imagine things about one so distinguished that his merits were conveyed to posterity in marble, and could but chew the cud of enjoyment over the Johnsonian periodicity of the epitaph of the

Member of the Corporation of Surgeons and
Fellow of the Royal Society
who
after rendering himself eminent in his Profession
for the space of sixty years
by a Dexterity and Extent of Knowledge
scarce exceeded by any of his Cotemporaries
retired
to the Enjoyment of rural and domestic Felicity
in the Society of his Family and Friends
at Sale within this Parish
He died on the 20th of February, 1813, aged 84.

It may have been a bad model, but I loved the rich roll of that 'rural and domestic Felicity,' and as I grew towards youth I tried to hunt out fuller information about him at the Chetham Library, the Reference Library, and elsewhere, with little success. I did not know how to hunt libraries in those days, and there were few to direct me, few also who after sixty years or so knew anything about him. It was only in after years, through the late Professor Cullingworth, that I obtained full knowledge of his life's work.

III

Sinclair and Semmelweis

What I want to impress upon you is that great as is Manchester's debt to him, he will be remembered in medical history for his work as an obstetrician. I have already referred to the importance of a proper historical perspective for teachers as well as for students. You may imagine my disgust a few years ago when a certain able knight, now no more, who held the Chair of Obstetrics and Gynaecology in the University of Manchester, published a very complete life of the Hungarian Professor of Obstetrics, Semmelweis;[1] published it that he might establish among English-speaking people a due recognition of Semmelweis's position as the pioneer in establishing the true nature of puerperal fever and the right means of prophylaxis; and

1. *Semmelweis, I. P., his Life and Doctrine; a chapter in the History of Medicine*, by Sir William J. Sinclair, M.A., M.D. Manchester: At the University Press, 1909.

claiming for him that ' in the whole history of Medicine we find a clear record of only two discoveries of the highest importance in producing direct and immediate blessings to the human race by the saving of life and the prevention of suffering,'[1] those namely, of Edward Jenner and Ignaz Phillip Semmelweis.

Such a statement is that of a special pleader. What about the discovery of anaesthetics, or the work of Pasteur and of Lister, or the discovery of Diphtheria antitoxin ? Were Sir William alive I might speak more strongly. Nevertheless, when the head of a school belittles the founder of that school the maxim ' De mortuis nil nisi bonum ' does not apply. Yet let me assure you that it is not that I want to attack Sinclair—far from it!—but, in order to give honour where honour is due, it is essential that Sinclair's work should be criticised and corrected. The whole volume, indeed, is one of unreasoning advocacy, in which, in order to establish his point the author throughout minimises the notable work accomplished by British obstetricians long years before Semmelweis came on the scene, and in particular so minimises the work of Charles White as to make it evident that his references are second-hand, that he, Professor of Obstetrics in Manchester, had not been familiar with that remarkable work of a Manchester obstetrician, ' The Management of Pregnant and Lying-in Women, and the means of curing, more especially of preventing, the principal disorders to which they are liable.'

1. Sinclair, Sir W. loc. cit : p. 1.

This is a treatise that in its day had a remarkable influence. First published in 1773, within twenty years there were no less than five editions. The book was translated into French in the year of its first publication and into German within two years, and was reprinted at Worcester, Massachusetts, in 1793. Of all men, it may be said, Sinclair should have had knowledge of this work. Had he been familiar with it he could not have given to Kirkland[1] the credit for procedures and treatment that had been made public a year previously by Charles White. But then, Kirkland was apparently a Scot,[2] and the perfervour with which Scottish obstetricians are treated throughout Sinclair's work save where, as in Gordon's case, they anticipated Semmelweis, and the way in which, in comparison, English work and English obstetricians are belittled can only in the circumstances be ascribed to an intellect that had come to lack poise through advancing age and the inevitable physical changes associated therewith. When one remembers Sir William's concise contributions to his subject in the earlier days, and his notable influence in the organisation and development of the school, the book under discussion is pitiful: it is so extraordinarily one-sided, strikingly lacking in grasp and in the orderly presenta-

1. Kirkland, T., M.D. '*A Treatise on Child-bed Fevers and the methods of preventing them.*' London, 1774.

2. 'We may presume that Kirkland was a Scotsman from Glasgow or Lanarkshire, attracted to London by the fame of Smellie and the two Hunters.' Sinclair, loc. cit: p. 339. As a matter of fact, Kirkland (1722-1798) graduated M.D. at St. Andrews in 1769.

tion of its subject, and defeats its object by its very prolixity. In this matter of Kirkland, for example, Sir William deals with him before White, but fails to notice that Kirkland's book was in fact due to White's direct appeal, and, what is more, that it was dedicated to him.

It is a pathetic yet irritating picture that Sinclair draws of Semmelweis, of a man who was his own worst enemy: with a passion for work and a tender heart for his patients, but so imperfectly educated that he, an Hungarian living in Vienna, never mastered the German tongue. Too proud to acknowledge his weakness and obtain help from others, for long years he refrained from publishing his results. He was content to have distinguished friends like Skoda and Hebra write on his behalf; he was either too loyal or too heedless to complain or correct when they, not unnaturally, published incomplete statements, yet he was foolishly indignant when others at a distance, basing their contributions on these imperfect representations of his views, were unable to accept them as an adequate survey of the whole ground. After four years he gave a full description of his work and stated his conclusions before the Vienna Medical Society, but then instead of handing in his paper for publication, he left it to the Secretary to publish an epitomised report, which, naturally, was both imperfect and inaccurate. Surely it is not the fault of the medical world if in these circumstances it failed to grasp the full significance of Semmelweis's message, and paid scant

attention to his *magnum opus* the 'Aetiologie.' This when at last it appeared (1861) was badly arranged, indescribably diffuse and argumentative, with constant digressions, written in the style of a scrivener, with wearisome iteration of phrase that out-Daniels Daniel in that chapter upon the Miracle of the Three Holy Children and its recurrent 'trumpets, sackbuts and shawms.'

Add to this that on reading the book it is clear that, despite the remarkable reduction in the mortality from puerperal fever accomplished by Semmelweis in Lying-in wards of the Allegemeines Krankenhaus in Vienna, he was never able to reduce the death-rate there to that of his predecessor Boër. Boër it was who, on his appointment as Professor of Midwifery in 1789, introduced the methods he had learned in England. In the thirty years during which he held the post 65,000 patients came under him in the Lying-in Hospital, with an average annual mortality of 1.3 per cent. That for his last year was 0.8 per cent. Under Klein, Boër's successor, the mortality rose the first year to 7.8 per cent. and usually remained high, sometimes being appalling, rising in some months to 20.84 and 29.33 per cent.[1] In one division of the hospital the mortality from puerperal fever during the years 1841-1846 inclusive varied between 6.8 and 15.8 per cent.; the average for 20,042 cases during the six years was just under 10 per 100. During Semmelweis's regime in the year 1848 the death-rate among 3,556

1. Sinclair, Sir W. loc. cit: pp. 51, 55, and 33.

patients fell, in this same division, to 1.27 per cent. In his first year at Pesth, it is true that Semmelweis's mortality was only 2 out of 514 patients, or just under 0.4 per cent., but in the next two years it rose to 2.8 and 4.0 per cent.

Yet Sinclair, while he gives these facts, makes no comment upon them and draws no deductions. He does not, or will not, see that practically all that Semmelweis accomplished was to demonstrate absolutely that the earlier, English, methods had been on sound lines and that reversion to those methods brought about a rapid reduction of mortality (for, practically, this was what Semmelweis put into operation); and that the main cause of the appalling incidence of puerperal fever in the Vienna Lying-in Hospitals was want of cleanliness and especially the practice of allowing students, after they had come straight from the post-mortem room, to examine the patients without first adequately cleansing their hands.[1] This, I admit, was a notable achievement, based on notable studies, but original only in the sense that he took up anew the old problem and utilised nobly the abundant material before him for its elucidation. He admitted other modes of infection, such as neglect to employ clean bed-linen, the presence of open suppurating wounds in neighbouring beds and 'self-

1. Semmelweis regards his Table XVII (*Aetiologie*, p. 62) as affording 'an irrefragable proof of my opinion that puerperal fever originates in the carrying over (Uebertragung) of decomposed animal-organic matter; . . . when the Vienna School adopted the anatomical basis of instruction the unfavourable health condition of the Lying-in women began.'

infection,' that is to say, the lochia, remnants of decidua and blood coagula which are retained may undergo decomposition and when absorption occurs produce puerperal fever.[1] It has, nevertheless, to be admitted that Semmelweis's methods, in his own hands, were incapable of preventing all the modes of infection. He was, for example, helpless in the group of cases of 'self-infection,' and in this respect his teaching was far behind that of Charles White. His great achievement was in the demonstration of the value of antiseptic treatment of the hands of the examiner, and recognition of the supreme virtue of chlorine preparations, and foremost among these of a solution of bleaching powder. But even in this he had been anticipated by British obstetricians and was knowingly employing their methods.

IV

White's Teaching

It is human to imagine that there were no heroes before Agamemnon, no antiseptic treatment before Lister. But in its prime sense of that which hinders sepsis, or putrefaction, the word 'antisepsis' was in use in 1751,[2] and was employed by James Lind,[3] the

1. Sinclair, Sir W. loc. cit: p. 205.

2. *Gentleman's Magazine* quoted in the New Oxford Dictionary.

3. Lind, J. An essay on the most effectual means of preserving the Health of Seamen in the Royal Navy (antiseptic sprinklings, aromatic fumes), pp. 60 and 86. London, 1757.

pioneer in naval hygiene, in 1757; by Charles White[1] and T. Henry[2] in 1773; by Joseph Priestley[3] and Thomas Kirkland[4] in 1774. White, in particular, draws attention to the part played by retained lochia in producing puerperal sepsis. Foul air and surroundings, filthy bedding, as well as the retention of the lochia and the excreta, are in his opinion the primary causes of the appearance of puerperal fever. 'The danger does not arise from the smallness of the quantity of the discharge, but from its stagnation whereby it becomes putrid and in this state is absorbed into the circulation.'[5]

Kirkland (1774) had similar views, holding that inflammation of the uterus and a consequent absorption of

1. White, C. 'The Management of Pregnant and Lying-in Women.' 1773, pp. 173, 174.

2. Henry, Thomas. 'On the Comparative Antiseptic Powers of Vegetable Infusions prepared with Lime,' in his *Experiments and Observations*. London, 1773.

3. Priestley, J. Observations on Air. p. 228.

4. Kirkland, T. 'A Treatise on Childbed Fevers and the methods of preventing them.' London, 1774.

5. Just as Semmelweis ascribed puerperal fever primarily to putrefaction, so White regarded it as a putrid fever :—

'When a woman is in labour, she is often attended by a number of friends in a small room, with a large fire, which, together with her own pains, throw her into profuse sweats; by the heat of the chamber, and the breath of so many people, the whole air is rendered foul and unfit for respiration; this is the case in all confined places, hospitals, jails, and small houses inhabited by many families, where putrid fevers are apt to be generated the more so where there is the greatest want of free air. Putrid fevers thus generated are infectious, witness the black assize, as it is usually called.' (White, loc. cit. 1st edition, p. 4).

Other quotations might be given showing that he held that foul air and surroundings, and more particularly the retention of the lochia and excreta, were the *primary* cause of the appearance of the fever which, once developed, could be conveyed to other lying-in women.

putrid matter from this organ will bring on puerperal fever. Regarding one of his cases he states : ' I should indeed have been glad if the uterus could have been washed out with antiseptic injections, but this, from a variety of obstacles, is seldom practised.' In the second edition of his book (1777) White advised that whenever the lochia became offensive, warm water should be frequently injected into the uterus by means of a syringe ' which had a thick siphon and was a little curved.'[1] In the third edition (1784) occurs the passage concluding the chapter upon treatment to which, in his address, Lloyd Roberts drew particular attention : ' I must not omit to mention in this place the good effects I have experienced from emollient or antiseptic injections into the uterus, by means of a large ivory syringe or an elastic vegetable bottle. In those cases where the lochia have become acrid or putrid and, by being absorbed into the circulation, have served as a constant fomes for the disease, I have by this means known the fever much assuaged, and in many cases wholly extinguished ; for though, as I have before observed, the quantity of the lochia is not to be much regarded, the quality of this discharge is a matter of infinite importance.'

He held so strong a belief in the damage of retained discharges that just as surgeons the world over to-day practice free drainage and place the patient in such a posture that this free drainage is favoured, so he

1. See 'Appendix' to the Second Edition here reproduced, p. 141 (note).

recommended that so soon as possible after delivery the patient be made to sit up or be placed in a reclining position to the end that the discharges from the womb gain a free exit and are not retained so as to undergo putrefactive changes ; and what is more, that she should get up and about in the second or third day at the latest. [Consult pp. 67, 108, 111 et. seq.]

This teaching of White's has of recent years been rediscussed, and is again coming to the fore in the practice of some obstetricians. White, in short, demonstrated seventy years before Semmelweis how to guard against and prevent that self-infection which the latter regarded as forming the residuum of cases of puerperal fever, which he was powerless to prevent. Further, Charles White was so successful in his practice that he was able to say that in his extensive experience of more than twenty years, while cases of puerperal fever had occurred through non-observance of the rules he had laid down, he had never lost a single patient of this disease.[1]

As to the extent of his experience it must be remembered that for many years after commencing practice he had the care of all the parish poor, not only of Manchester, but of a large district around it, herein succeeding his father, Dr. Thomas White (1696-1776), who had particularly interested himself in midwifery.[2]

1. Compare also the testimony of White's pupil, Cope of Leek. 'Appendix' to the Second Edition, p. 120.

2. At a time when 'men-midwives' were few and far between, Thomas White was an active obstetrician. He performed the first Caesarean section in the North of England, and Charles White freely attributes his methods and his success to his father's example.

Nay more, as my old friend, the late Dr. Cullingworth has pointed out, he had enlightened views as to the nature of the disease. 'Every surgeon,' writes White, 'conversant with his business knows that a rapid pulse (i.e. fever) never fails to attend absorption of matter from abscesses or ulcers, whatever be the other concomitant symptoms. . . . If to these considerations we add that, as the puerperal fever is more fatal in large cities and crowded hospitals than in places where the air is more open and pure, so is the fever occasioned by the absorption of matter . . . (and) that as the puerperal fever does not appear till after delivery, so neither does absorption of matter from an abscess till it be opened and the air have access, we may, I think, conclude that the absorption of matter is the immediate cause of the puerperal fever as well as of that consequent upon abscesses and ulcers.'[1] In other words, White recognised, long before Sir James Simpson wrote his classical essay on the subject (1850)[2] the close analogy between the fever that followed surgical operations (and the ulceration of wounds), and the fever to which lying-in women are liable.[3]

But Sinclair took no note of all this. He gives three and a half pages to Kirkland, half a page to White, referring to 'one point alone' as worth recalling in

1. Vide 'Appendix,' p. 105.

2. Simpson, Sir J. '*Some notes upon the Analogy between Surgical Fever and Puerperal Fever.*' *Monthly Journal of Med. Science.* Edinburgh, 1850.

3. See C. J. Cullingworth. '*Charles White, F.R.S.*' London, 1904; p. 28.

White's prophylaxis, and that with disapproval, namely, early sitting up. He cannot have studied the original or he would have recognised that White laid equal importance with Semmelweis upon the decomposition and putrefaction of the uterine contents, and upon the relationship between puerperal fever and 'pyaemia.' Seventy years before Semmelweis, the English school of obstetricians were showing how to combat puerperal fever with a success at least equal to that of Semmelweis; and Charles White of Manchester, developing the practice of his father, Thomas White, was the leader in the revolution.

White's system was that of absolute cleanliness in all the surroundings of the patient. 'Her lying-in chamber to be in every respect as sweet, as clean, and as free from any disagreeable smell as any other part of the house. . . . The room is to be brushed every day, and the carpets taken out to be cleaned and aired. . . . The patient is to be often supplied with clean linen, and clean well-aired sheets are to be laid upon the bed. . . . The windows are to be opened . . . no board or other contrivance to block up the chimney, the curtains not to be closely drawn. . . . In hospitals, if separate apartments cannot be allowed to every patient, at least as soon as the fever has seized one she ought immediately to be moved into another room, not only for her immediate safety, but that of the other patients; or it would be still better if every woman were delivered in a separate ward and was to remain

there a week or ten days, until all danger of this fever is over.'[1] The diet is to be simple, the bowels kept open, and alcohol is to be eschewed. Whenever a patient has recovered from this fever and is removed to another room, the bedding and curtains should be washed, the floor and woodwork should be cleansed with vinegar, and it would add to the salubrity of the apartment if it were stoved with brimstone.'[2]

V

The Application of White's Teaching

We see the influence of White's teaching in that first important report[3] from the Rotunda Hospital, Dublin, that of Robert Collins, for the period of his mastership, 1826 to 1833, long years before Semmelweis. It is only during this century that the bacteriologists have by experiment determined that nascent chlorine is the most rapid and effective of all disinfectants where organic matter is present, and actually during the War that we have had developed the methods of wound treatment by nascent chlorine of Lorraine Smith and Dakin. With our existing knowledge and satisfaction over our accomplishments, it is hard to believe that what I am going to quote was written eighty-five years

1. Charles White, loc. cit. first edition, pp. 129, 130 and 169.

2. *Ibid.* p. 173.

3. Collins, R. '*A practical Treatise on Midwifery,*' *containing the result of* 16,654 *Births occurring in the Dublin Lying-in Hospital during a period of seven years, commencing November,* 1826. London, 1835.

ago: it sounds so modern. Collins entered upon his mastership at the end of 1826, after puerperal fever had prevailed to an alarming extent. In 1827 the disease was slight; in 1828 the fever was much more severe, proving fatal to twenty-one women, and it continued to increase in violence in January and February and the beginning of March, 1829. In February he had all the wards in rotation filled with chlorine gas in a very condensed form for the space of forty-eight hours, during which time the windows, doors, and fire-places were closed so as to prevent its escape as much as possible. The floors and all the woodwork were next covered with the chloride of lime, mixed with water to the consistence of cream, for forty-eight hours. The woodwork was then painted, and the walls and ceilings washed with fresh lime. The blankets and similar articles were in most instances scoured, and all stoved to a temperature of between 120° and 130°.[1]

'From the time this was completed until the termination of my Mastership in November, 1833, we did not lose one patient by this disease. As the wards of the Hospital are occupied by the patients in rotation, as soon as each in succession was vacated I continued the use of the chloride of lime, confining its application to the floors. In this way each ward was washed every ten or twelve days, the solution being left undisturbed

1. It is interesting to compare with this the methods of that earlier pioneer in obstetrics, Professor Thomas Young of Edinburgh in 1774, the year after the publication of White's book, given in the 'Appendix' here reproduced, pp. 117 et. seq.

for twenty-four hours, during which time the blankets, quilts, linen, etc., were suspended, so as to be exposed completely to the *chlorine gas, which is copiously disengaged from the preparation mentioned.*' (The italics are mine.)

He then proceeds to describe his care in regard to the ventilation of the wards, exactly along the lines of Charles White's recommendations. With him he enjoined that the ventilation be put beyond interruption by the nurses or patients, by the provision of ventilation-holes in the ceilings, through the upper sashes of the windows and over the doors.

White was an ardent believer in fresh air. He recommended the building of special lying-in wards ' so contrived that the air might be kept in constant circulation, in such a way that there would be no danger of the creation or communication of this disorder.

' The rooms must be lofty, open galleries (i.e., passages) with unglazed windows should run through the whole buildings. The wards should all be upon the centre floors, and they should have no doors except into the galleries, and those doors should be opposite to the windows in the wards, that there may be a thorough ventilation of air when the windows are opened. In the upper part of the doors should be several holes to let out the foul air . . .

' An entire apartment should be allotted to every patient, or else if large wards were constructed the windows should be placed very high, with the upper-

most sashes made to let down. Large apertures should be made as high as possible in the partition wall which divides the wards from the gallery, after the manner of the Leicester Infirmary; and in the upper part of some of the windows the furthest from the fire should be fixed a few leaden lattices to admit fresh air, or, what is still better, circular, or as they are called by some, Æolian ventilators. I do not suppose that the superior advantages of these ventilators over a leaden lattice consists in admitting more fresh, or extracting more foul air; but by their circulatory motion they prevent the air from rushing directly upon the persons in the room, and thereby giving them cold. They should be kept open night and day, that a constant circulation of air be maintained; for it will not be sufficient if a door or even a window is opened a little in the middle of the day only, of which whoever will take the trouble to go into a ward of a hospital early in a morning will thoroughly be convinced, the air having been rendered so foul and disagreeable by a number of people breathing in it a whole night as to make the atmosphere very unwholesome, not only to lying-in women, but to any other person.

'Several air pipes made of wood of about six inches diameter, fixed in every ward and passing through the ceiling and the roof, have been found very useful in the Manchester Infirmary. I have been in a great number of hospitals, but I do not know any so free from foul air as that Infirmary, which may, I think, be easily accounted for . . . In the galleries, and in many of

the wards, lead lattices are fixed in the windows. Holes are cut in the upper parts of the doors, and the doors are generally open in the day-time. In the largest wards are openings in the walls likewise to admit fresh air . . .

'Besides air pipes carried through the roof, others may be let into the chimney of the ward above as has been practised at St. George's Hospital.'[1]

At the Rotunda, Collins carefully copied most of White's recommendations, and he states :—'Of 10,785 patients delivered in the Hospital subsequent to this period only 58 died, which is nearly in the proportion of *one* in every *one hundred and eighty six*, the lowest mortality perhaps on record.' That is 0.53 per cent. mortality, and this not from puerperal fever. To repeat, there was not one death from that disease. It was from all other causes. I doubt if even to-day, with our full development of asepsis, any French, German or Austrian Maternity Hospital can show better figures. And this was thirty years before Pasteur founded the science of bacteriology and established the microbic nature of infection, thirty-five years before Lister introduced his antiseptic methods into surgery, and fifteen and more years before Semmelweis. Moreover, Semmelweis never obtained such results. I admit that granting the time and the place Semmelweis's results were notable and most striking ; *but they were not original.* I admit also, and freely, that by the early forties other influences were at work in Great

1. Charles White, loc. cit. 1st edition, pp. 162-167.

Britain: that Charles White's great work had become old-fashioned and forgotten and his methods had lapsed, even in Manchester itself, so that puerperal fever again raised its head and the mortality at St. Mary's Hospital became a matter of the gravest concern. This fact, however, must not be laid to White's account, but to the diffusion of foreign, and particularly French teaching as to the nature of puerperal fever and its epidemic character. It was the later appearance of that same wave of erroneous 'epidemic' doctrine obtaining on the Continent which, in 1826, on the ground that his procedure was old-fashioned and based on 'contagionism,' had at Vienna forced the resignation of Professor Boër, and had led to the disastrous introduction of Professor Klein and his 'anatomical' teaching into the Allegemeines Krankenhaus.

VI

The Teaching of Semmelweis

Let us once for all analyse and present Semmelweis's teaching. It is this, as stated in the 'Aetiologie,' the ultimate full statement of his theory and practice, published in 1860. I give it as translated by Sinclair.[1]

'Puerperal fever is not a contagious disease, but puerperal fever is conveyable from a sick to a sound puerpera by means of a decomposed animal organic material.

1. Sinclair. loc. cit., pp. 202, *et seq.*

'I maintain that puerperal fever, without the exception of a single case, is a resorptive fever produced by the resorption of a decomposed animal organic material . . . (This) is, in the overwhelming majority of cases, brought to the individual from without; these are the cases which represent child-bed fever epidemics; these are the cases which can be prevented.

'In rare cases the decomposed animal matter which when absorbed causes child-bed fever is produced within the limits of the affected organism. . . .

'The sources of the decomposed animal organic material which conveyed from without, causes puerperal fever are all diseases . . . if only the disease in its progress produced a decomposed animal organic material . . . only the decomposed animal organic material as a disease producer has to be taken into consideration. . . . What the object actually represents is of no importance; it is the degree of putridity which has to be considered.

'The carrier of the decomposed animal organic material is everything that can be rendered unclean by such material and then come into contact with the genitals of the patient. . . .

'Puerperal fever is therefore not a species of disease (i.e., a specific disease) (but) a variety of Pyaemia. . . . I understand by Pyaemia a blood poisoning produced by a decomposed animal organic matter . . . This disease can be produced in a normal healthy puerpera by a disease which is not puerperal fever. . . .

'There are no epidemic influences capable of producing puerperal fever . . . epidemic, that is to say atmospheric, cosmic, telluric influences . . . If (it) were produced by (such epidemic influences) it could not be prevented . . . . (It is not bound up with any season in particular . . . p. 217.) The medical profession in England regard puerperal fever as contagious. . . . . That puerperal fever is not contagious is my belief.

'But puerperal fever is conveyable (uebertragbar) . . . but only from those infected women who produce decomposed material. After death (it) is conveyable from every cadaver of a puerpera to a healthy individual when the cadaver has reached the necessary degree of decomposition (p. 224).

'The task of prophylaxis of puerperal fever must consist in preventing the access of decomposed material from without, the arrest of the development of such material within the organism, and the removal as quickly as possible from the organism of such a material so as to prevent its resorption.

'All pathological anatomy and even surgical work in the curriculum should be finished before the practice of midwifery has begun.

'The conveyer of the decomposed matter may also be the air. Hence free ventilation is necessary (so as to prevent the development of a puerperal miasma). Isolation rooms should be provided.

'As regards "self-infection," if decomposed material has actually been produced in the individual it must be

at once got rid of by cleanliness and injections so as to prevent resorption as far as possible.'

Leaving aside for the time being Semmelweis's doctrine of decomposed animal organic material, the only serious difference between the English school, as represented by the obstetricians at the end of the eighteenth century, and Semmelweis, in the middle of the nineteenth, is that the one believed in contagion, the other in Uebertragung. Instead of showing, as he ought to have done, that with our present knowledge of the nature of puerperal fever this is a distinction without a difference, Sinclair solemnly and unbelievably emphasises that the distinction is all-important.

So far as I can discover, from 1774 to 1840 no British writer of the first rate claimed that puerperal fever was a specific disease. While some pointed out the close relationship of this condition with erysipelas, others with scarlet fever, and others again—like Charles White—with jail fever, or—like Collins and the earlier workers in Dublin—with typhus, not one of them claimed that all cases were erysipelas or scarlet fever or typhus. Nor was Semmelweis original in his demonstration that students and those attending the lying-in woman might convey the disease to her. Gordon of Aberdeen[1] in 1795 had recognised that those in contact with, or in attendance upon, cases of puerperal fever might convey the condition to others in the puerperal state, and Oliver Wendell Holmes,

1 Gordon : 'On the Epidemic Puerperal Fever in Aberdeen,' 1795.

as is well known, had, prior to Semmelweis, emphasised this danger in 1843. What is that but Uebertragung ? As I have pointed out, the doctrine of self-infection admitted by Semmelweis goes back to Charles White.

We in the medical profession are the slaves of words of indefinite meaning, words which cloak our ignorance and are a curse to clear thinking—words such as 'contagion,' 'septicaemia,' and 'pyaemia.' To some of us at certain periods 'contagion' has meant the direct conveyance of infection by immediate contact between the infected individual and one hitherto not infected. To others at the same time or at other periods it has meant infection transmitted by any means and through any intermediary ; to others again 'contagion' implies, and Sinclair employs the word in this sense, infection, however conveyed, by a sharply-defined species of disease. Semmelweis could not use the term 'contagion' simply because he did not believe that puerperal fever was an infection ; for him it was an intoxication set up by decomposed animal matter. We may admit that it was not his fault that he was wrong, and that had he lived thirty years later he would have been eager to embrace the knowledge of the microbic causation of the condition. The fact remains, however, that the contagionists, so called, were nearer to the truth than he : they, at least, saw that they dealt with an infectious condition or conditions. Yet Sinclair in 1909 preferred to err with Semmelweis rather than to embrace the truth with his fellow-obstetricians in Great Britain.

For some reason or another the late Professor Sinclair either had little appreciation of bacteriology or found it to his interests to act as advocate for Semmelweis and to carp at modern investigation. So little apparent acquaintance had he with scientific progress that, in 1909, he asserts that the discussion on the etiology and nature of Puerperal Infections at the International Congress at Paris in 1900 presented all the ascertained knowledge of the bacteriology of puerperal sepsis up to a period nine years later than the date of the Congress, stating that 'nothing of essential importance had been added to this department of bacteriological knowledge' (p. 364), and making the statement elsewhere that 'the very latest question raised in the confused tug-of-war' is with regard to the 'haemolytic influence of the streptococcus,' by which I presume he meant 'the special virulence of haemolytic members of the streptococcus group.'

VII

The Modern Teaching

Yet, as the late Dr. Arnold Lea,[1] a member of Sir William's own staff, showed in his important work written a few months later, the studies upon streptococci and upon their relationship to puerperal fever

1. Lea, Arnold W. W., M.D., B.Sc., F.R.C.S., Lecturer in Gynaecology and Obstetrics, Univ. of Manchester; Assistant Surgeon to St. Mary's Hospital. '*Puerperal Infection.*' *Oxford Medical Publications*, 1910.

have solved the problem of the etiology of the disease. It will be useful here to sum up the present day bacteriological conclusions regarding that etiology :

1. Putrefaction is essentially caused by bacteria, so that the 'Uebertragung' of decomposed animal organic material meant always the conveyance of bacteria.

2. Not all the organisms that set up decomposition of animal matter are by any means necessarily pathogenic.

3. Not every case of conveyance of cadaveric material will therefore cause infection of the puerperal uterus or other wounded surface.

4. The organisms which most frequently cause terminal infections, which therefore are most frequently present post mortem, are members of the streptococcus group; these at the same time are the commonest saprophytes on the skin and mucous membranes of the body.

5. So long as the skin and mucous membranes are intact, for so long may streptococci and other microbes of a highly virulent nature persist on the unbroken surfaces without setting up disease.

6. The organisms which in an overwhelming majority of cases set up and are found associated with puerperal fever are members of the streptococcus group, and of these again the overwhelming majority are haemolytic strains. As with wounds in general, other organisms may be present and may preponderate or

be in practically pure culture in the blood and tissues, to the exclusion of streptococci, notably, staphylococci, *B. coli*, strains of pneumococcus, and *B. pyocyaneus*.

7. Streptococci, both haemolytic and non-haemolytic, and the other microbes above mentioned, may be present in the vagina of the pregnant woman. These organisms explain 'self-infection.' That every puerperal woman does not suffer from 'wound fever' is probably due to the bactericidal action of the effused blood and to the strongly acid and inhibitive, if not actually bactericidal, properties of the vaginal secretion.

8. Stagnation of the lochia without free drainage is known to favour bacterial multiplication and so infection of the placental site. Hence the sound wisdom of Charles White's principle of womb-drainage. The argument that early sitting up favours uterine thrombosis is not valid. Such thrombi are of bacterial causation, and proper drainage, by preventing infection, prevents thrombosis.

9. Not only do streptococci vary greatly in virulence, but as Marmorek and others have shown, their virulence and haemolytic activity may be increased at a rapid rate by passage through animals in series; that is to say, during the sojourn in the body of the animal there may be definite increase in virulence. Further, growth in confined spaces under favourable conditions favours increase in virulence.

10. No bacteriologist of standing for the last fifteen years has seriously supported the view that there

is a distinct species of streptococcus, *S. erysipelatos*. In other words, it is accepted that the streptococcus which sets up erysipelas in one individual may induce peritonitis and other forms of infection in other individuals. There may well, therefore, be a correlationship between frequency of cases of erysipelas in a district and frequency of cases of puerperal fever.

11. Similarly the scarlatinal sore throat—as also the diphtherial—is characterised by most abundant local growth of streptococci, usually haemolytic in character. Several observers have thus held that a streptococcus is the cause of scarlet fever, just as prior to the discovery of *B. diphtheriæ* the same organism was held to be the cause of diphtheria. This local growth of streptococci obtains in other zymotic diseases in which the throat is affected. Wherefore we can understand the correlationship that has been suggested between these diseases and puerperal fever.

We admit, therefore, that what holds for other streptococcal diseases holds true for the origin of puerperal fever; it may originate (*a*) from a previous case of puerperal fever either directly or through the intermediation of a third person; or (*b*) from a previous case of suppurative or other disease, not puerperal fever, by like means of conveyance; or (*c*) it may be of autogenous origin, due to saprophytic organisms which possess or acquire exalted virulence and gain admission to the unprotected placental site. Streptococci, which are the main microbes involved, are so widespread and are so constantly present upon the human

skin and in the alimentary canal, that in many cases it is not possible to state which was the mode of origin.[1] This, however, stands out clearly, that by following the methods of Charles White—by methods of scrupulous cleanliness of the patient and her surroundings and of womb drainage—the incidence of puerperal fever can be reduced to an almost negligible minimum.

The one matter to which White does not refer is the personal cleanliness of the accoucheur and the midwife. So precise is he in his details regarding the cleanliness of the lying-in woman, her body and bed-linen, of the lying-in room and the wards, that it is difficult to imagine that he took no care of these matters. It is obvious, from Semmelweis's admission,[2] that disinfection of the hands was a well-established British procedure prior to his time.

Now much, if not all, of this knowledge was at the disposal of Sir William Sinclair twelve years ago, and I cannot but feel that in his desire, however kindly, to exalt Semmelweis he unduly and unpardonably neglected it, to the injury of the great work

1. For the 'last word' see Eden, *The Lancet*, Nov. 11, 1922, p. 1001.

2. The admission is not a little to the point (Sinclair, loc. cit., p. 218) :—

'English practitioners, starting with the conviction that puerperal fever is contagious, do not visit a healthy pregnant, parturient or puerperal woman when they have paid a visit to an infected pregnant, parturient or puerperal patient, *without previously disinfecting their hands with chlorine disinfectant* (the italics are mine) and without changing their clothes; and when the number of puerperal cases increases in their practice, they go away from home or completely abandon midwifery practice for a time. The English practitioner, if he must undertake the post-mortem examination of a patient who

accomplished by British obstetricians at the end of the eighteenth and beginning of the nineteenth centuries. They it was, and not Semmelweis, who first gained control over puerperal fever. They it was who introduced free ventilation and as absolute a cleanliness as was possible into the lying-in ward and lying-in room, who laid stress upon disinfection, who realised the value of antisepsis long years before Lister, who recognised the worth of chlorine and chloride of lime, who introduced the disinfection of the hands and drainage of the puerperal wound, who would have no truck with the epidemic—that is, the atmospheric, cosmic, or telluric theory—but held to the contagious, that is to say infective, theory of the origin of the disease; and, holding that, saw the condition was preventible and so must be prevented.

To the seeker after truth it is debatable which is the more repugnant:—Chauvinism, with its exaltation of the local and national and wilful closing of the eyes to the virtues of anything that comes from without, or its converse, the running after strange prophets

has died from puerperal fever, never visits a normal parturient or puerperal woman without first pushing the same precautions to the fullest extent.

'In every case in which the infected puerpera produces a decomposed material, the English practitioners do something *which is superfluous but not harmful;* they destroy the decomposed material in the belief that they are destroying a contagion which would cause puerperal fever if carried to a healthy parturient or puerperal woman.'

And the English practitioners were right and Semmelweis was wrong. But Sinclair never admits this. If practice has been altered it has been because now we know more concerning hand disinfection and its difficulties, and the value of rubber gloves, and certainly not as a consequence of Semmelweis's teaching.

and refusal to give honour to the prophets of one's own country. It would be difficult to adduce a more flagrant example of the latter evil than this afforded by Sinclair's volume. Semmelweis deserves to be held in grateful remembrance and to be given a place in the temple of fame, not for his enunciation of a new and true theory—for his theory was quite erroneous; nor again as the originator of sound practice in the prevention of puerperal fever—for in not one single point was his practice original; but for his demonstration, as timely as it was heroic, of the wrong, not-to-say deadly nature of the treatment in vogue prior to his re-introduction of the rational methods of the end of the eighteenth century.

The real pioneers in the reduction of puerperal fever were the British obstetricians of the latter half of the eighteenth century in London, Manchester, Edinburgh, and Dublin. Men like Denman, Kirkland, the Whites, Young, Ould and Clarke; and among these assuredly Charles White, the founder of the Royal Infirmary and of what is now St. Mary's Hospital, takes the first place. I can only repeat to-day what the learned Dr. Thomas Henry, F.R.S. ('Magnesia Henry') said concerning White's *magnum opus*, in his obituary memoir read to the Manchester Literary and Philosophical Society in April, 1813: 'Perhaps, indeed, few medical books have been productive of more important reform in practice, or of more comfort and safety to the subjects for whose benefit it was intended. Nature was restored to the free exercise of her operations, and officious ignorance

was prevented from converting into fatal disease what was benevolently and wisely designed to be a process scarcely ever attended with danger.'[1]

VIII

The Manchester School and its Future

And from White onward there has been in Manchester an able succession of great obstetricians: Hull (1761-1843) who along with White established Phlegmatia (or Phlegmasia) alba dolens as a definite entity, and laid down clearly the conditions under which Caesarean section should be undertaken; Wood (1785-1830), who was the first to advise that in placenta praevia the entire detachment of the placenta from the os and cervix uteri should be practised; Thomas Radford (1793-1881), one of the first in this country to propose ovariotomy and a strong supporter of Charles Clay (1801-1893) who may fairly be regarded as the father of ovariotomy in Europe (Clay's first case occurred in 1839, and in 1865 he was able to report 111 cases of the operation, 77 of which were successful); James Thorburn (1834-1865), first Professor of Obstetrics and Gynaecology at Owens College, author of a practical treatise on the Diseases of Women—a great teacher; Charles J. Cullingworth (1841-1908), with his notable studies upon ectopic gestation and

1. Trans. Lit. and Phil. Soc., Manchester; Series 2, Vol. e. 1819, p. 44.

pelvic peritonitis, who succeeded him and, following Cullingworth, Sir William Japp Sinclair.

It is a noteworthy list, of which Manchester may well be proud, nor has the succession ceased. To-day, under Donald and Fothergill, as all who have followed this last year's medical journals cannot but realise, the School is as vigorous as ever.

One last word. It is for this generation to make the School not local but imperial in scope, and like Dublin with its Rotunda to attract students from all parts of the Empire.

Unlike most other Medical Schools known to me in Great Britain and America, Manchester has developed a most successful post-graduate course of the old type—a course of lectures and demonstrations upon the newer developments in medicine and surgery. It is the centre of perhaps the most densely-populated area of the civilised world, and there is a sufficient number of practitioners in the immediate neighbourhood who find it possible to attend those courses without grave disturbance to their practice. And this is all to the good. But let me point out that this is not post-graduate work of the higher type. At most these are 'refresher' courses. They are not calculated for the full education of the specialist in his specialty. They do not—they ought not to—attract men from a distance to Manchester for advanced work of the first quality. However great the utility of the present courses, they are not such, either in length, or ground covered, or practical training, as to

entitle a man to consider them as affording a qualification for special practice.

Nevertheless, there is to-day a distinct demand for this more advanced and expert post-graduate work, for work of the type that in the past was provided by Vienna and Berlin. For myself, indeed, I look forward to the time when we shall cut the Gordian Knot of the problem of medical education by shortening and simplifying, and not by lengthening and further complicating, the course leading to the first qualifying examination ; when we shall grant the M.B. to the man who has been given instruction in the general principles and ordinary practice of Medicine, Surgery, and Obstetrics ; shall demand then that every graduate who intends to take up general practice shall spend a year in hospital prior to being given his licence to practice, while those ambitious to take up special work in the medical sciences (anatomy, physiology, pathology, etc.) or in medicine, surgery, gynaecology and the specialties, shall be required to give not one but two years to advanced work in the medical school and hospital combined, in one or other particular direction, leading to a Diploma or, if thought fit, a Master or Doctor's Degree.

This parenthetically. In the meantime it is for those medical centres which possess particular schools or departments well-equipped, and with a reputation and tradition in teaching and research, to make use of those particular schools, encouraging those from outside and overseas to take advantage of the

opportunities they afford. It would be futile for any British School of Medicine to invite post-graduate students to attend special courses extending over two years or so in every branch of medicine and surgery; men will only be attracted by teachers of repute. Liverpool, for example, with the established tradition of Thomas and Sir Robert Jones, is offering to medical graduates of approved Universities an intensive course of lectures, laboratory and hospital work, of fifteen months in Orthopaedics, beginning in October of one year and extending through the Long Vacation to December of the next; a course leading to a second degree of Bachelor of Orthopaedic Surgery. With its continuing tradition and abundant clinical facilites why should not Manchester offer a similar course in Obstetrics, or more broadly, in Gynaecology? The other two great branches of our common subject have their degrees.

I suggest that the time is ripe for the development, in the school of Charles White, Hall, Clay, Radford, Roberton, Thorburn, Cullingworth, Sinclair and Lloyd Roberts, of a post-graduate course of such high order that the possession of the Manchester degree in Gynaecology should in itself stamp the possessor as a fully-qualified expert.

CHARLES WHITE'S WRITINGS

UPON

PUERPERAL FEVER

REPRODUCED FROM THE FIRST EDITION OF HIS TREATISE UPON THE MANAGEMENT OF PREGNANT AND LYING-IN WOMEN (LONDON, 1773)

WITH THE APPENDIX TO THE SECOND EDITION (LONDON, 1777).

CHARLES WHITE, F.R.S.

Reproduced from the mezzotint engraving by W. Ward (1809), *after the portrait by Joseph Allen.*

A

TREATISE

ON THE

MANAGEMENT OF PREGNANT

AND

LYING-IN WOMEN,

AND THE MEANS OF CURING, BUT MORE ESPECIALLY

OF PREVENTING THE PRINCIPAL DISORDERS

TO WHICH THEY ARE LIABLE.

TOGETHER WITH SOME

NEW DIRECTIONS

CONCERNING THE

DELIVERY OF THE CHILD AND PLACENTA

IN NATURAL BIRTHS.

Illuſtrated with CASES.

By CHARLES WHITE, F.R.S.

Member of the Corporation of SURGEONS in LONDON, and SURGEON to the MANCHESTER INFIRMARY.

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MDCCLXXIII.

CHAPTER I

Of the Causes and Symptoms of the Puerperal or Child-bed Fever[1]

Women, during the time of lying-in are subject to this fever, which has evident symptoms of putrescency, and which if not properly managed has often fatal effects.

That child-bed women should be so [2][2] liable to putrid fevers,[3] is not to be wondered at, if we consider every

1. This disorder in the northern parts of this Island is called the weed; and in the southern parts by some, improperly, the lochial fever.

2. Editor's Note. These figures in brackets indicate the beginning of the pages so numbered in the first edition.

3. 'Puerperæ ex male affecti corporis vitio tanquam auræ pestilentialis contagio tactæ *febri putridæ*, seu potius *malignæ* quam nimium obnoxiæ reperiuntur; hujusce vero morbi labem haud omnes ex æquo suscipiunt: etenim pauperes rusticæ, aliæque duris laboribus assuetæ, nec non viragines, & meretrices, quæ clandestina agunt puerperia, sine magna difficultate pariunt, & deinceps brevi a lecto excitatæ, ad solita redeunt opera; mulieres autem ditiores, tenellæ, & pulchræ, pleræque vitam sedentariam degentes, quasi maledicti divini graviori modo participes *in dolore pariunt*, indeque mox a partu difficiles & periculosos subeunt casus.'—Willis de Febribus Puerperarum, Febres putridæ Caput xvi.

Willis's account would not have been liable to any material objection, if he had not excepted the poor in general, for it is now well known that they are very liable to this fever both in the hospitals, and in their own houses, especially if they are situated in the middle of large manufacturing towns and cities; but there is this to be said in favour of the Doctor, that it is above a century since he wrote this Treatise on the Puerperal fever, at a time when there was no hospital for lying-in-women in the British dominions, our manufacturies were then in their infancy, and the diet and mode of living amongst the poor people, were totally different from what they are at this time.

circumstance, and every inconvenience they lie under, owing to bad fashions and customs; but to trace them up to their original source we must look back as far as the early months of pregnancy. At this period the tightness of the stays, and petticoat bindings, the weight of the pockets, and of the petticoats, press the womb already enlarged by the fœtus [3] and its membranes, so strongly against the lower intestines, as to prevent the descent and exclusion of the excrements. These being retained, the thinner parts are absorbed by the lacteals, which cause, or at least greatly increase, that obstinate costiveness of which most women complain during the whole time of pregnancy, and which is also farther increased by a sedentary, inactive life, and improper diet. This excrementitious matter being absorbed into the circulation undoubtedly occasions a great in[4]clination to putridity; loss of appetite soon follows, and the stomach and duodenum being no longer distended with aliments, large quantities of bile are collected in the gall bladder, the cystic and hepatic ducts, and by lodging there soon acquire a putrid, or putrescent acrimony.

When the woman is in labour, she is often attended by a number of her friends in a small room, with a large fire, which, together with her own pains, throw her into profuse sweats; by the heat[1] of the chamber, and the breath of so many people, the whole air is rendered [5]

1. Dr. Thomas Cooper speaking of the lochial fever says, 'this fever is most common, and also more fatal in the hotter months.'—Compend. of Midwifery, p. 220. Lond. 1766.

foul, and unfit for respiration;[1] this is the case in all confined places, hospitals, jails, and small houses, inhabited by many families, where putrid fevers are apt to be generated, and proportionally the most so where there is the greatest want of free air. Putrid fevers thus generated are infectious, witness the black assize, as it is usually called.

If the woman's pains are not strong enough, her friends are generally pouring into her large quantities of strong liquors, mixed with warm water, and [6] if her pains are very strong, the same kind of remedy is made use of to support her. As soon as she is delivered, if she is a person in affluent circumstances, she is covered up close in bed with additional cloaths, the curtains are drawn round the bed, and pinned together, every crevice in the windows and door is stopped close, not excepting even the key hole, the windows are guarded not only with shutters and curtains, but even with blankets, the more effectually to exclude the fresh air, and the good woman is not suffered to put her arm, or even her nose out of bed,

1. It has been found by Dr. Stephen Hales (Statical Essays, Vol. 2, p. 324) that a person in health destroys two gallons of air in two minutes and a half, so as to render it unfit for respiration.

Dr. Percival informs me that a correspondent of his, (a gentleman distinguished for his knowledge of Natural and Experimental Philosophy) has lately discovered 'that air which animals have breathed is in all respects the same with air in which animals have putrefied. The original quantity is equally diminished in both cases; which is found to be owing, in part at least, to the precipitation of the fixed air it contained: and they are restored by the same process. One use of the lungs therefore must be to carry off a putrid effluvium, without which a living body might perhaps putrefy, as well as a dead one.'

for fear of catching cold. She is constantly supplied out of the spout of a tea-pot with large quantities of warm liquors, to keep up perspiration and sweat, and her whole diet consists of them. She is confined to a horizontal posture for many days together, whereby both the stools and the lochia are prevented from having a free exit. This happens not only from the posture of the patient, but also from [7] the great relaxation brought on by warm liquors and the heat of the bed and room, which prevent the over-distended abdominal muscles from speedily recovering their tone, whereby they are rendered unable to expel the contents of the abdomen, which lodging in the intestines many days become quite putrid.

The lochia stagnating in the womb, and in the folds of the vagina, soon grow putrid, for it is well known that the mildest humours in the human body, if suffered to stagnate, become so, as soon as the air has access to them. These are in part absorbed by the lymphatics in the womb and vagina, and the effluvia from them help to make the air in the bed, and in the room, more putrid ; this air in every act of inspiration is taken into the lungs, and is there again received into the circulation: add to this that women are generally of a lax, seldom of a rigid fibre, owing in [8] some measure to their periodical evacuations, to their sedentary, inactive, and domestic way of life, and likewise to their muscles being surrounded with a much larger quantity of cellular membrane, than those of men ; hence also they arrive at their acme sooner than men.

Amongst the poor people who live in cellars, and upon clay ground floors, the air is still made worse by the dampness, and closeness of their houses, and the want of clean linen, and cleanliness in general. Those who live in garrets are also in no better a situation, for the putrid miasmata of several families inhabiting the lower part of the house, ascend to them, already suffering perhaps from the effluvia of a whole family in every single room, the putridity of which is farther increased, by the heat of the sun piercing through the covering of the house; nor is it to be wondered at that they are still in a worse [9] situation in hospitals,[1] where a number are crowded, not only in one house, but in one ward, where the disease is conveyed from one to another by the putrid miasmata

1. 'Il a régné pendant l'hiver de 1746 une maladie épidémique parmi les femmes en couche: M. de Jussieu a le premier observé cette maladie; elle commençoit par le dévoiement, ou par une disposition au dévoiement, qui continuoit pendant la couche: les eaux qui accompagnent ordinairement la naissance de l'enfant, sortoient pendant le travail de l'accouchement; mais apres ce temps, la matrice devenoit sêche, dure & doloureuse, elle étoit enflée, & les vuidanges n'avoient pas leur cours ordinaire.

Ensuite, ces femmes étoient prises de douleurs dans les entrailles, sur-tout dans les parties qu'occupent les ligamens larges de la matrice; le ventre étoit tendu, & tous ces accidens étoient accompagnés d'une douleur de tête, & quelquefois de la toux.

Le troisième & le quatrième jour après l'accouchement, les mammelles se flétrissoient, au lieu qu'elles durcissent & se gonflent naturellement dans ce temps par le lait qui s'y filtre alors en plus grande quantité: enfin ces femmes mouroient entre le cinquième & le septième jour de l'accouchement.

Cette maladie n'a attaqué que les pauvres femmes, & elle n'a pas éte aussi violente, ni aussi commune parmi les pauvres femmes qui ont accouché chez elles, que parmi celles qui ont été accoucheés a l'Hôtel-Dieu; on a remarqué que dans le mois de Février, de vingt de ces femmes malades en couche a l'Hôtel-Dieu, a peine en échappoit-il

lodging in the curtains, [10] bed cloaths, and furniture, and by the necessary houses, which are either contiguous to, or so near the hospital as to occasion a most disagreeable smell, and must of course convey that infection which cannot be more effectually communicated, than by the excrements. [11]

The breasts, if drawn at all, are not drawn till several days after delivery, when they are so full as to be perfectly gorged, and as hard as stones. By this means the first milk, which for a very wise purpose is thin, purgative, and of a stimulating nature, is thrown back into the circulation.

This description may perhaps seem overcharged for a picture of that improved practice which is introduced by modern professors of the art; but upon a close examination, I believe it will appear that many of the

une : cette maladie n'a pas été si meurtrière dans le reste de l'hiver. Mrs. Col de Villars & Fontaine, Médecins de cet Hôpital, nous ont rapporté qu'a l'ouverture des cadavres de ces femmes, ils avoient vu du lait caillé & attaché a la surface externe des intestins, & qu'il y avoit une sérosité laiteuse épanchée dans le bas-ventre ; ils ont même trouvé aussi de cette sérosité dans la poitrine de quelquesunes ; & lorsqu'on en coupoit les poumons, ils degorgeoient une lymphe laiteuse & pourrie.

L'estomac, les intestins & la matrice bien examinés, paroissoient avoir été enflammès, & il est sorti, suivant la rapport de ces deux medecins, des grumeaux de sang, a l'ouverture des canaux de la matrice.

Dans plusieurs de ces femmes, les ovaires paroissoient avoir été en suppuration.'—Hist. de l'Acad. Royale des Sciences l'an 1746, 4to. p. 160.

'I am well informed that this fever and obstruction occur more frequently in the lying-in hospitals, than in private practice. What can this arise from but from the different states of air? This in my opinion is the cause, for though very great care is taken in those hospitals, yet as the apartments and furniture will imbibe some of the morbid effluvia, arising from the patients, the air must always be more or less tainted.'—Johnson's Midwifery, p. 253.

most important errors do in reality prevail, and this I [12] impute in great measure to the large share which nurses have in directing the management of lying-in women, to whose interference practitioners must in some measure submit, though contrary to their better judgment.

Women have frequently many, and sometimes all of these difficulties to struggle with, even after the most easy deliveries, but if there has been such violence used, either by instruments or by the hand, in the extraction of the child or the placenta, as to bring on an inflammation of the womb, these difficulties will still be farther increased. The patient may likewise be put upon her labour too soon, by endeavouring to dilate the os internum, or be too frequently teazed with unsuccessful attempts to deliver her, or after the head is born, the body of the child may be delivered too suddenly, and too forcibly, without waiting for another pain, or [13] giving the shoulders time to accommodate themselves to the different dimensions of the pelvis, the bad effect of which I shall explain more at large hereafter.

In a few days after delivery the patient is perhaps seized with a shivering fit, and the nurse is surprised, as she protests she has not had the least waft of cold; more cloaths are heaped upon her; spirituous liquors, and hot spices, are given her, to throw off the cold fit, which most certainly increase the succeeding hot one. A warm room, plenty of cloaths, and warm drinks are continued to throw her into a sweat, but have frequently

a contrary effect, by increasing and prolonging the burning fit, which at last terminates in a most profuse putrid sweat, continuing many nights and days without giving relief.

The cold fit sometimes like the paroxysm of an ague returns, but at uncertain[14]periods, and at last ends in a continued fever; at other times no cold fit precedes the disease; it creeps on gradually, and first shews itself by putrid sweats, attended with a nausea, or by vomitings of porraceous matter, and a looseness. What the patient vomits is generally mixed with large quantities of bile of a dark colour. The stools are sometimes very copious and frequent, and so exceedingly putrid as to be offensive all over the house, and to convey infection to the whole family: at other times the patient is racked with a constant tenesmus, and with frequent motions to make water, accompanied with swelling, pain, and soreness in the belly, and with pains in the head, back, breasts, sides, hips and iliac region, with a cough and difficulty of breathing; there is commonly a wildness in the countenance, and the head seems hurried, and in some cases the face is flushed; the urine is generally very high coloured, and sometimes [15] turbid, with a gelatinous, unequal sediment; but in others it is very pale, or appearing like foul cyder, with filaments in it.

The tongue at first is white and moist and soon after is covered with a white fur; or else it is dry, hard, and brown, and afterwards covered with a brownish fur; a brown, or blackish sordes, the consequence of putrid

exhalations, adheres to the edges of the teeth. The patient usually nauseates all kinds of food and drink, except what is cold and acidulated. The pulse at the beginning of the disorder is very little altered, only something fuller and quicker, but as the disorder advances, it grows quick, small, and creeping, and the patient complains of great anxiety, and oppression about the præcordia, attended with sighings, lowness of spirits, lassitude and great debility. The quantity of the lochia is frequently not at all diminished, [16] at other times it is very much lessened, what flow are very fœtid, and in some cases this discharge is totally suppressed.

The breasts in some grow flaccid, the milk abates in quantity, and if the disorder is not soon removed, is entirely lost; but this is not always the case.

If the hot regimen be continued, with vinous spicy caudles, hot alexipharmic medicines, volatile alcalious salts and spirits, opiates, and a close room so as to keep the patient in a perpetual sweat, vibices[1] or petechiæ appear, or eruptions either of the white or red kind, or both, first upon the neck and breasts, afterwards extending themselves all over the body, one crop succeeding another [17] till the patient is worn out; but they give no relief, are not in any way critical, nor is there indeed any regular crisis in this disorder, except the looseness.

1. Cooper speaking of this fever about the fourth day says 'Now, if not before some violent pains come on, in the arms, and thighs, succeeded by a discolouration of the skin, occasioned by the blood corroding and stagnating in the vessels.'—Compend. of Midwifery, p. 218.

The patient is generally easier after every stool, and they seem to give relief. The stools at last are discharged together with the urine, involuntarily; colliquative sweats, hiccupings, convulsions, &c., come on; and death, which happens sometimes sooner, sometimes later, closes the scene. There are some who have died so early as within twenty four hours after the first attack, but the eleventh from the first seizure, is said to be the day on which the patient most commonly dies, though others have lived many days longer without recovery.

This disease was well known to Hippocrates,[1] and to numberless au[18]thors who have written since his time, and has been styled either epidemic,[2] malignant, putrid, or inflammatory, and by some a compound of all four. It is certainly at all times malignant and putrid, when

1. Hipp. de Morb. Mulierum, lib. 1, sect. 5.
——— on Epidemical Diseases, case 4 and 5.

2. 'During the prevalence of epidemic fevers, the recovery of women in child-bed is much more precarious than in healthy seasons. This is observable in every sphere of life, but for obvious reasons, more remarkably in lying-in hospitals; it has been taken notice of by the industrious Dr. Sydenham, and by Tho. Bartholine, and must undoubtedly have happened invariably in all ages of the world, though it is now better understood in this country, since some of the most ingenious of our physicians have devoted their time chiefly to the study and practice of midwifery, and the management of those diseases with which it is more particularly connected.'—Millar on the prevailing disorders of Great Britain, pt. 3, sect. 1, p. 332, of the puerperal fever.

'Nonnunquam post lochiorum suppressionem in febrem incidunt puerperæ, quæ vel in earum quæ tum grassantur epidemicarum castra transit, vel ab ea sola pendit origine.'—Dissert. Epist. ad Gul. Cole, M.D. op. p. 532.

suffered to run its course, and frequently at some seasons epidemic, and in some situations may properly be [19] said to be endemic. Nay if the womb has been lacerated, or has received any injury in labour, it is sometimes undoubtedly compounded of all five. Some have represented it as entirely owing to the milk, some to an inflammation of the womb[1], and many to a suppression of the lochia; some have ranked [20] it amongst hysterical[2] disorders, and others

1. Tissot, in his *Avis au Peuple*, Eng. edit. by Kirkpatrick, p. 371, seems to think that this disorder is an inflammation of the womb, and he mentions an extraordinary circumstance not taken notice of by other authors, viz. that the belly turns black. Sect. 370 he says, 'The inflammation of the womb is discoverable by pains in all the lower parts of the belly, by a tension or tightness of the whole belly, by a sensible increase of pain on touching it—a kind of red stain or spot that mounts to the middle of the belly, as high as the navel, which spot as the disease increases turns black, and then is always a mortal symptom, by a very extraordinary degree of weakness, an astonishing change of countenance, a light delirium or raving, a continual fever with a weak and hard pulse, sometimes incessant vomitings, a frequent hiccup; a moderate discharge of a reddish stinking sharp water, frequent urgings to go to stool, a burning kind of heat in the urine, and sometimes an entire suppression of it.'

2. 'Femina XXX. annorum, temperamenti sanguineo-melancholici, hystericis passionibus in puerperio, & extra illud, sæpius, obnoxia, tertium gravida, gestationis tempore nec venæ sectionem admisit, nec exquisite servavit præcepta diætetica. Primis post partum diebus non bene purgata est utero: sed de dolore lumborum, torminibus ventris, alvo adstricta, & somno per aliquot noctes inquieto conquerebatur. A practico, quem in consilium vocavit, validiores essentiæ ad pellenda lochia fuerunt datæ; & ad alvum aperiendam uncia dimidia salis amari Sedlicensis in aqua simplici soluta est oblata. Inde auctis torminibus, nec facta per alvum, nec per uterum excretione, converso sanguinis versus superiora motu deliravit, & accedentibus convulsionibus extincta est.'—Hoffman, Tom. 3, sect. 1, cap. 5, obs. 10 de malo Hysterico.

have called it only a symptom, but all have agreed in its fatality,[1] and the uncertainty of every method of cure, both in the rich, and in the poor, who all acquire this disorder from simi[21]lar causes, though by means somewhat different. I am informed that the appearances after death, are those of inflammation and gangrene in the intestines, or some of the abdominal viscera ; sometimes in the uterus ;[2] and in some cases when the disease has been of long continuance, it has extended to the lungs, and all the neighbouring parts.

In the cavity of the abdomen, is generally found an extravasated serum, mixed with purulent matter, and an exsudation appears upon the surface of the intestines, glueing them to one another, and to the peritonæum. There is[22] no wonder that these appearances should be observed, more particularly in the abdomen, as the very acrid putrid stools voided in this disorder must naturally tend to inflame, and to give a putrescent disposition to the intestines by transuding their coats, or being absorbed into their small vessels ; and we may conclude, that the same causes which produce putrefaction in the abdomen of a dead

1. ' As the disease which is the subject of this Essay occasions the death of much the greater part of women who die in child-bed, &c.'— Denman on the Puerperal Fever, p. 1.

2. Pouteau in his Melanges de Chirurgie, p. 182, upon opening two women who died of this fever in their lying-in at the Hospital at Lyons says, ' En ouvrant ces matrices il ce présenta dans l'une & dans l'autre une circonstance qui mérite attention ; la tunique interne de ce viscere etoit noire & molle : la matrice dans son epaisseur avoit une rougeur livide & vraiment gangreneuse.'

body,[1] sooner than in any other part,[23] will also operate in the same manner in the living body, wheresoever there is a general putrefactive tendency; nor need we be surprised that the womb itself should be found in a gangrenous state when we consider the great distension it has undergone, and that it has afterwards suddenly collapsed, and has been kept sometime imbued with the stagnating putrid lochia.

It does not appear that this disorder can be ascribed to simple inflammation. The patients complain chiefly of a tension, soreness and tenderness of the belly, and are seldom affected with those excruciating pains which generally attend common inflammations of the bowels; [24] but it evidently manifests itself to be of the putrid kind, occasioned by human effluvia, by accumulations of acrid putrid bile, and of a putrid colluvies through the whole intestinal canal and organs of

1. Sir John Pringle gives us the following note, which he informs us he had from Doctor Hunter. 'That the abdominal viscera and muscles corrupt the soonest of all parts in the body after death, wherefore it is a rule with anatomists to begin their dissections and demonstrations with those parts which first become offensive. That the quick putrefaction here may reasonably be ascribed to the putrid steams of the fæces with which all those parts are more or less impregnated, hence too the cause of the speedy corruption of the psoas and iliacus internus in comparison of the muscles in the extremities. That next to the abdominal viscera and adjacent parts, the lungs are commonly soonest tainted, whether from the air stagnating in the vesiculæ bronchiales, or some remains of the perspirable matter that may act as a ferment, and hasten the putrefaction. For whoever tries the experiment of compressing the thorax in a body that has been dead some time, will be sensible of the putrid state of the lungs, by the offensiveness of the air that is forced out of them.'—On the Diseases of the Army, Appendix, p. 84, 4to. Edit.

generation, and is a malignant[1] fever of the same genus as the jail or hospital fever.

Scarce any two authors have described this fever alike, and yet I believe [25] their descriptions have truly been from what they have seen, but these different appearances have been probably owing to a variety of management, and to a difference in the constitutions of the patients.

A true puerperal fever is originally caused by a putrid atmosphere, &c. not occasioned by either the heat of the air, or any hot things taken internally ; but notwithstanding this, it may be much aggravated by these, and many of the symptoms frequently attending it, are entirely occasioned by hot air, and a hot regimen. For instance, if a woman of a strong constitution, and of a plethoric habit of body, is seized with this fever, and spirituous liquors and hot spices are given her, she will have a strong hard pulse, and the symptoms of inflammation will run so high as to indicate the necessity of copious bleeding ; and when the fever is farther advanced, a delirium, subsultus [26] tendinum, &c., will come on. But if the patient is

1. Dr. Munro says, ' Many authors have reckoned the malignant, petechial, and pestilential, to be distinct species of fevers, and have treated each under a particular head. But Riverius has very justly observed, that they all belong to the same pestilential tribe, and only differ from one another in the degree of infection, and violence of the symptoms, and that they are cured by the same general treatment, and the same medicines.'—On the Dis. of the Military Hospitals, p. 55.

And in a note he farther says, ' The malignant or *hospital* fever, and petechial, seemed to me to be entirely the same disorder, and the petechial spots to be only a symptom which appeared sometimes, but not always.'—*Ibid.* p. 56.

of a more relaxed habit of body, and is kept sweating in bed in a warm room, by warm liquids, eruptions will appear upon the skin; and if a woman subject to hysterical complaints is seized with this fever, and has any large evacuations either naturally, or procured by art, a train of hysterical symptoms will succeed. And lastly, it must be observed that though all the symptoms here enumerated have been seen in different patients, yet it must not be imagined that all of them ever occurred in the same subject.[27]

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CHAPTER VI [112]

OF THE PREVENTION OF THE PUERPERAL, MILIARY, AND MILK FEVERS

As soon after the woman is delivered as it can be conveniently done, clean linen should be put about her, she should be left to the most perfect quiet of body and mind, that she may, if possible, get some sleep. The child should be removed into another room, and no visitors, or other persons, except such as are absolutely necessary, should be allowed to enter the patient's chamber. A number of people, besides preventing repose, foul the air, and render a frequent[113] supply necessary. From hence appears the disadvantage of a small apartment. Where the patient has it in her option, I would always recommend a large lofty room

upon the first chamber floor, and could wish it (if in summer) to have a northern aspect, but if that cannot be had, there should be window blinds placed on the outside of the windows, for when they are on the inside, they do not answer the purpose of keeping out the heat of the sun. In this room there ought to be no fire in summer, and little or none in winter whilst the patient is in bed, unless she has been used to sleep constantly with one in her chamber; for though fires are undoubtedly of the greatest service in keeping up a circulation of air, yet at the same time a constant fire in a small room, when a person has not been accustomed to one, may overheat the patient. This I know will be objected to by the nurses, upon their own account, especially if they are to wake, but waking is [114] what I do not approve, except on the first night, and then only if the delivery be late in the evening. It will disturb the patient much less if the nurse has a small bed in the room, but I would by no means suffer the child to remain there, if accommodations can possibly be had for it in any other part of the house. The patient should not be disturbed in the night, either upon pretence of giving her liquid or solid nourishment. If either be necessary, she will naturally of herself demand it.

Much mischief is often done by binding the belly too tight.[1] If there be any occasion for support, a thin

1. 'This disease (the puerperal fever) it must be acknowledged, may follow a labor under the best circumstances, but endeavours to dilate the os internum, and too hasty a separation of the placenta will produce it, and binding the abdomen tight after delivery.'—Denman on the Puerperal Fever, p. 18.

napkin pinned very slightly round the waist, is all [115] that is absolutely necessary, and the sooner this is disused the better. But if there really was occasion for strong compression, the common methods would be extremely inadequate. The compression must necessarily be unequal, the large hip bones of women effectually preventing such means as these from making an equal pressure upon every part of the uterus.

The thick fustian waistcoats and petticoats usually worn during the lying-in, are much too warm. In the whole article of dress and bed clothes, nothing should be added to what the patient has been accustomed to in perfect health.

In a few hours after delivery, as soon as the patient has had a little rest, she should sit up in bed, with a bed-gown thrown over her shoulders. If she proposes to suckle the child, it should now be laid to her breast, whether there be signs [116] of milk or no. This should be repeated four or five times a day, but in the night it is not necessary either that the breast should be administered, or that any kind of food should be given to the infant.

The patient should lie very high with her head and shoulders, and should sit up in bed when she takes her food, and as often as she suckles her child, and should kneel whenever she has occasion to make water, which should be often done.

This frequent upright posture is of the utmost consequence, and cannot be too much enforced. It prevents the lochia from stagnating, the stools and urine

from being too long retained, and promotes the contraction of the uterus, together with that of the abdominal muscles.

Large quantities of caudle, and thick gruel mixed with ale, wine, or brandy, [117] are often very pernicious. They clog the stomach, and pall the appetite. Strong liquors as they are apt to heat, should not be given to the patient, unless she has been accustomed to them. Thin water gruel, well boiled and strained, panada, sago, wort, salep, barley water, to which a small quantity of lemon juice has been added; teas of all kinds, but particularly those of bitter antiseptic herbs, such as chamomile, or buckbean; coffee, cocoa and chocolate, buttermilk alone, or mixed with spring water, imperial, orange, or lemonade, or plain toast and water may be allowed, provided none of them have been found by experience to disagree with the patient. None of these liquors should be given hot, the cooler they are drank the better, and they may even be given perfectly cold. Toasted bread, sea biscuit, or something solid should be taken to prevent faintness, and as soon as the patient has an appetite her food should consist of [118] boiled bread pudding, boiled fowls, lamb, or veal, vegetables and ripe fruit. Too much animal food should not be allowed, and it should never be eaten oftener than once a day, and then not without bread and greens, roots, or some kind of vegetables. The North American sago powder, dissolved in boiling water forms a most agreeable, transparent, mucilaginous, vegetable jelly, which is demulcent, restorative and

nutritious; obtunding the acrimony of the fluids, and correcting putrefaction; of a more pleasant taste, in my opinion, than salep, and much cheaper than the foreign salep, though not so cheap as that produced in our own country, and prepared in the manner directed by Mr. Moult in the Philos. Trans. vol. 59, p. 1.

Whatever water the patient drinks either alone or in gruel, teas, &c., should not be such as is tainted with any putrid animal or vegetable substances, which is [119] generally the case in all reservoirs of stagnant water and in rivers adjoining to large towns.

Broths,[1] or soups made of flesh-meat, especially if given warm, are impro[120]per, as they are apt to throw the patient into a sweat, and promote putrefaction. If the patient cannot, or does not choose to suckle her child, she should be very abstemious in her diet; but if she suckles it, a much greater latitude may be allowed.

Fruits, vegetables, and all kinds of acid or acescent food have generally been denied to nurses, upon a

1. 'The French and many other nations, give their patients *meat soups*, in acute diseases, and after capital operations, and they allow them but little bread, or other preparations of vegetable substances; but these soups, without bread, do not nourish the patient sufficiently, and tend too much to the putrescent; and this is one reason why more sick die in the French, than in the British hospitals.'—Monro on the diseases of the British military hospitals, Note to p. 373.

Dr. Lind, speaking of a marine hospital erected at Jamaica, upon a most unhealthy spot of ground, says, 'The recovery of patients in that hospital was observed to be very tedious, and uncertain; the least indiscretion or irregularity brought on a relapse. After a flux had been stopped some days, the eating of any sort of food, which had a putrid tendency, such as even a mess of *broth*, would sometimes in a few hours bring on a return of the disease, accompanied with all its violent symptoms.'—Essay on the diseases of Europeans, p. 174.

supposition that they created acidities in the children's bowels. This in some constitutions they certainly do, but the rule is by no means general. I have known nurses abounding in acrid putrid bile indulge freely in these kinds of food with great advantage to themselves, and with no disadvantage to their infants, as plainly appeared by the children's never parting with green stools during the time of their being suckled.[1]

The heat of the room ought to be so tempered that the patient may neither be chilled with cold, nor yet suffer from sweat or burnings. She should be kept in that degree of heat that approaches nearest to the standard of health. Some have kept themselves in a constant gentle sweat, or diaphoresis as it is called, in order to prevent a rigor, or cold shivering fit ; but it is well known that no degree of heat, let it be ever so great, will prevent the rigor, either in a puerperal woman, or even in a common ague. There have been instances of persons having rigors in the hot sweating room of a bagnio, and I have been informed that these have been the most dreadful ; rigors and even common agues are frequent in the hottest climates. The patient's skin should be soft, but not[122] so much as moist; her linen being damp with sweat will render her liable to catch cold ; she will be sensible of every breath of air, and cannot rise or even turn herself in bed without danger.

1. Are not the sour green stools of children oftener owing to weakness and relaxation in their digestive[121] organs, and the inert quality of their bile, than to the acescency of the milk ? and do we not often see them change for the worse even though the nurse has made no alteration in her diet, nor has tasted any kind of acescent food ?

The apartment cannot be ventilated, nor even a curtain be undrawn; consequently she becomes weak, the fibres are relaxed, and thus a predisposing cause is given of putrid fevers. Custom in this I know is much against me, as well as in many other particulars; but I have hundreds of evidences to prove that sweating is not necessary even in the smallest degree.

Much mischief appears to have been done amongst ignorant people by confounding the ideas of perspiration[1] and sweat. The difference between them has been remarked by so great a number of authors, that quotations would be endless; it is sufficient for common use to observe that perspiration is that insensible discharge of vapour from the whole surface of the body and the lungs which is constantly going on in a healthy state, that it is always natural and always salutary; that sweat, on the contrary, is an evacuation which never appears without some uncommon effort, or some disease in the system, that it weakens and relaxes, and so far from coinciding with perspiration, obstructs and checks it.

With regard to sweating in febrile disorders many contrary opinions have[124] prevailed. It was introduced with the notion of carrying off by its means the morbid matter which was supposed to be the occasion of all

1. Dr. Home has proved by several experiments that a free perspiration does not depend so much upon the heat, as the dryness of the air, he says, 'Moisture stops [123] perspiration in a great degree. Dr. Hales has observed that moisture has the same effect on the perspiration of plants.'—Med. Facts and Experiments, p. 245.

A little farther he observes, that 'by these two experiments it appears that the perspiration is greater in frost than in open weather.'—*Ibid.* p. 246.

fevers. Later observation has however found it prejudicial in many cases; and some have gone so far as to deny its utility in any. I shall make quotations from some of these authors[1] who have considered this matter the most clearly and particularly.

1. 'Hippocrates relates the cases of some patients, whose fevers were terminated after the eruption of sweat, whether that sweat really put a period to the disease, or only appeared at its end; as it happened in the instances recorded, lib. 1. patient 6. 7. lib. 2. patient 7. 11. 12. in which patients the fever seems rather to be terminated by an eruption of blood than of sweat; for sweat so far as I can perceive is not by Hippocrates always proposed as an instrument by which the disease is cured, but only as a mark or sign by which its event or termination may, with the greatest certainty, be prognosticated. For this reason, in those books of his which are accounted genuine, he nowhere mentions sudorific medicines; and even in those works which are falsely ascribed to Hippocrates, there is only once mention made of a sweat procured or forced by medicines; for the author of his second book of epidemics orders a sweat to be procured by carefully covering the patient with the bed cloaths, and exhibiting [125] meal, mixed in rich and generous wine, nor does he even prescribe these measures as proper to be taken, except in those fevers which arise from lassitude, or some other similar cause, such as those commonly called diary fevers.

'Internal medicines for producing sweats were so little in use among the ancients, that Celsus has not a single word upon this subject. If therefore sweats are of any advantage in fevers of this kind, they seem to derive their efficacy from nature alone. During those sweats perhaps the peccant matter might be easily dissipated, and carried through the skin, either on account of the temperance of the climate, or by the good constitutions of the patients, which were not yet corrupted by sloth and luxury. But in the present condition of mankind, we in vain expect the solution of a disease by sweat, whether spontaneous and natural, or procured by art; and I believe I may justly venture to affirm, that in violent fevers the patients are rarely restored by sweats alone.'—Friend on Fevers, Comment. 1.

'But whereas the hot regimen is still too much in use, it may not be amiss to examine a little more narrowly, how it comes to pass that so many ill consequences flow from it.

'Nature then is scarce ever able to expel the febrile matter by sweat, before it has taken up a proper time for its maturation, except in the plague; so that sweats, which of their own accord flow largely in the beginning of a disease, do not carry off the fever, but prognosticate a long and dangerous disorder, and probably are the occasion of it.

From the whole we may conclude. [126]

1. That sweating in bed in a confined atmosphere must be very detrimental to a [127] person in health, may bring on many disorders, but cannot prevent any. [128]

2. That sweats are particularly detrimental to

They likewise render the patient costive in the beginning, and in putrid fevers frequently cause a diarrhœa towards the crisis, whereas those persons generally escape, and most easily get free from a fever, to whom the very contrary of this happens.

'In these climates there is no necessity that persons in perfect health should have a visible moisture on their skin, but in very warm countries, in hot days this seems to be of great service. In Egypt during the second part of the summer, every one sweats profusely several times a day, and at that season the inhabitants always enjoy the most perfect health.

'Such an error is never more frequently committed than in giving what they call cordial and sudorific medicines in the beginning of fevers, for this method promises an easy and pleasant cure, and is agreeable to the opinion of the vulgar. Custom has made it familiar, and the patient finds himself relieved when the sweat begins to flow, and if they stop he is abundantly hotter, more thirsty and restless.

'But sweats which are very easily brought on in the beginning of a disease, will frequently quite disappear, as it advances towards the height, so as not to be recalled by the warmest medicines; and though they should continue to flow, they will certainly bring along with them those bad symptoms which have been mentioned before. Although the ancients, the most studious of nature, never admitted this method of practice, and the moderns more intimately instructed in the sacred mystery of physick always rejected it, yet it is never to be expected that the old women who have a licence of slaying mankind with impunity should ever suffer themselves to be taken off from their method of cure; but it is to be wished that Physicians who follow the guidance of reason, would throw aside their prejudices, and weigh the matter with that carefulness it deserves, and banish this pernicious method from that art which promises health to mankind.'—Glass on Fevers, Comment. 10.

'Plerumque in principio morborum acutorum nocet (sudor); rectius tunc succedit, quando facta coctione materies morbi per cutem expelli parata est. Ipse tamen per seipsum neque petechias, neque miliarem morbum sanat, neque variolas & periculose per calida medicamenta quæritur, ut ne calidus quidem potus nimis tutus fit, quem vidi, de mitissmis herbis decoctum, bis intra triduum in delirium atrox hominem miliari febre laborantem conjecisse: qui idem refrigeratione undique quæsita levatus, denique convaluit.'—Haller. Elem. Physiol. tom. v. p. 51.

women in the puerperal state, as they render them costive, check the discharge of the lochia, relax and weaken the patients, and make them so susceptible of cold, that the air cannot be renewed, nor the common offices of life be performed without danger.

3. That sweats are very detrimental in the beginning of all low nervous, or putrid fevers, but particularly those of lying-in women, which if not in the beginning, are always in their termination of one of those classes, if they continue any length of time.

4. That the rigor in the paroxysm [129] of an ague is terminated by a sweat, but the continuance of that sweat will not prevent a fresh accession.

5. That when the morbific matter is thrown off by the skin, it must be an act of nature; and the most probable means of promoting that end is to keep the patient in that kind of heat which nearest approaches the standard of health, at the same time promoting a free circulation of air, that those morbific particles and the human effluvia may not stagnate about the patient, but be carried off, and their absorption prevented by an effectual ventilation.

The chamber door, and even the windows, if the weather be warm, should be opened every day. There should be no board or other contrivance to stop the chimney, on the contrary it should be quite open, that it may act as a ventilator. The curtains should not be close [130] drawn, that the effluvia may have the liberty of escaping. Carpets are very useful, as they render washing the room unnecessary, for moisture ought as

carefully to be avoided as heat or cold, therefore it ought not to be washed upon any account as long as the patient stays in it. The room should be brushed, and the carpets taken out every day, to be cleaned and aired.

The lying-in chamber should in every respect be as sweet, as clean, and as free from any disagreeable smell, as any other part of the house. The patient should often be supplied with clean linen, for cleanliness, and free, pure, and in some cases cool air, are the greatest necessaries in this situation; and upon the strictest examination it appears evident to me that there never was a miliary eruption produced without a sweat, nor a puerperal fever without foul air, except in cases where violence had been used, either in [131] dilating the *os internum*, or in the delivery of the child or the placenta, or from some very great imprudence.

The sooner she gets out of bed the better; this should not be deferred beyond the second or third day at the furthest, and then if it be winter time, it will be necessary to have a fire.

Clean, well aired sheets, should now be laid upon the bed, but by no means such as have been lain in since their washing.

If the patient has not every day a stool, one ought daily to be procured. The best and safest way of effecting this (especially during the first week) is by clysters; for these will not only procure stools, but by passing along the arch of the colon, act as fomentations to the whole abdomen, without any griping or other disagreeable commotions. For this purpose warm

water is generally sufficient; but if the fœces are too much hardened, milk, oil, and brown sugar, or [132] the *decoct. commun. pro clyst.* with syrup of buckthorn may be administered, nothing of a more stimulating nature should be used; it is better to repeat these clysters, in which case their end will certainly be answered. If the patient has an unconquerable aversion to these applications, or if a clyster cannot be administered either upon account of lacerations in the sphincter ani, or from any other cause, it will then be necessary to give a little manna, lenitive electuary, rhubarb, or magnesia. The stools, urine, and foul linen, should not be permitted to remain in the apartment.

If the lochia do not flow so plentifully as may be expected, or if they entirely stop, no irritating, forcing medicines should be used. They never do any good, and are often productive of much mischief.[1] If the patient is other[133]wise as well as can be wished, no regard needs to be paid to this circumstance. We not only find this evacuation very different in different women, but even in the same woman in different lyings-in, from which she recovers equally well. I have frequently known this discharge to stop the

1. 'We have also been taught to endeavour strenuously to remove every obstacle to the regular procedure of the lochia. But it unfortunately happens that almost all the medicines recommended as emmenagogues are improper in every inflammatory state of the blood, and experience proves that in this case, all the symptoms are aggravated by their use.

'It may not be amiss to observe that either a great, or a little quantity of the lochia unattended with other symptoms, is not to be looked upon as a disease, or meddled with.'—Denman on the Puerperal Fever, p. 24.

very first day without the least bad consequence. If she has other complaints, the causes of those complaints must be enquired into, and the disorder remedied; if this be done, the stoppage of the lochia will be of little or no consequence, and when the cause is taken away they will sometimes flow [134] again. It is not a primary disease, the effect is mistaken for the cause.

The patient's recovery does not depend upon the quantity of the discharge, for the *evacuation itself will not prevent* either the puerperal or miliary fever. It is well known that the laborious hard working women (who using much exercise, seem to live in a state nearly approaching to that of nature) have not so large a quantity either of the menses or lochia as the more delicate part of their sex, yet they commonly enjoy a good state of health, and recover from their lyings-in much sooner than others. They are the very reverse of those whose fibres are relaxed by a sedentary inactive life, and I have frequently observed, that such as have the lochia in greatest abundance are most liable to putrid fevers. It must however be owned, that after these fevers are commenced, stoppages are not uncommon. All I would here[135] inculcate is, that the danger does not arise from the smallness of the quantity of the discharge, but from its stagnation, whereby it becomes putrid, and in this state is again absorbed into the circulation. When the discharge is great, but does not weaken the patient, no remedy is necessary; when it does, an infusion of the external rind of

oranges, with the bark,[1] and the acid elixir of vitriol may, during any period of the puerperal state, be given with safety and advantage. To these may be added a strengthening incrassating diet, blomange, flummery, sago, salep, jellies of calves' feet, hartshorn or isinglass. When this disorder arises from irritations and spasms, occasioned, as is very often the case, by too [136] great an acrimony of the fluids, opiates and the tincture of roses well acidulated are generally successful. If the evacuation should be excessive, provided the patient be kept cool, she may be indulged with rest in a horizontal position, and more powerful astringents must be used, such as alum posset, and the lixivium martis, given to the quantity of fifteen or twenty drops three or four times a day. Linen cloaths dipped in cold vinegar[2]

1. 'The Peruvian Bark has been given to a woman successfully in the quantity of a drachm every three hours, two days after her delivery, for twenty-four hours, without lessening the lochia; and it has frequently been given to others during their catamenia without the least interruption of them.'—Med. Transact., vol. 1, article 21, by Dr. W. Heberden.

2. 'Injecting cold water into the uterus is recommended by that celebrated professor of midwifery at Edinburgh, Dr. Young, but it is a remedy I have never tried. "Verum arteriolas rubras constringendo ad hæmorrhagias sistendas optime accomodatum est frigus. Ad hoc efficiendum, applicatio topica, in partis affectæ vicinia, maxime convenit. In epistaxe, remedium apud omnes notissimum est aqua frigida, quæ ope lintei, fronti vel nuchæ imponitur: nec ullum quidem efficacius invenitur. Ne crarius, neque minore successu, in menorrhagia adhibetur: interdum enim, multis aliis incassum tentatis, aqua gelida dorso, modo supra dicto, applicata speratum auxilium præbet. In lochiorum profluvio immodico & periculoso eandem multum laudat Cl. professor noster Young; quam in uterum, per horæ quadrantem, continenter injicere jubet."'—Tucker Dissert. Med. Inaug., p. 21.

may be frequently applied to the lower part of the abdomen. [137]

If the patient faints[1] away she must not be roused by volatiles, or anything else applied to her nose, nor by wine or other cordials given internally. I have frequently known fainting fits put an immediate stop to violent floodings, by [138] giving the blood time to coagulate in the uterine veins, and large doses of nitre[2]

1. 'And upon this occasion I recollected a remark of Doctor Hunter's, which is, "that the faintness which comes on after hæmorrhages, instead of alarming the by-standers, and making them support the patient by stimulating medicines, as spirits of hartshorn and cordials, should be looked upon as salutary, as it seems to be the method nature takes to give the blood time to coagulate." '—Hewson's Experimental Enquiry into the Properties of the Blood, p. 68.

'From this circumstance, that the disposition of the blood to coagulate is increased as the animal becomes weaker, we may draw an inference of some use, with regard to the stopping of hæmorrhages, viz., not to rouse the patient by stimulating medicines, nor by motion, but to let that languor or faintness continue, since it is so favourable for that purpose; and also that the medicines likely to be of service in those cases, are such as cool the body, lessen the force of the circulation and increase that languor or faintness. For in proportion as these effects are produced, the divided arteries become more capable of contracting, and the blood more readily coagulates; two circumstances that seem to concur in closing the bleeding orifices.

'Besides giving stimulants and cordials to counteract the fainting, it is a common practice in many parts of England, to give women who are flooding, considerable quantities of port-wine, on a supposition that it will do them service by its astringency. But surely, from its increasing the force of the circulation, it must be prejudicial in those cases. Perhaps many of the remedies called styptics might be objected to for the same reason.'—*Ibid.* 71.

2. 'It therefore shews how much languor and faintness should be encouraged in hæmorrhages, and how carefully we should avoid giving anything that can stimulate, or rouse the patient; that the medicines that are likely to be of service are nitre and the acids, or such as cool the body or have the property of diminishing the force of the circulation, or of increasing that languor or faintness; that all anxiety and agitation of mind should, as much as possible, be prevented, lest they

have often afforded instant relief, [139] which I suppose is owing to the power which Mr. Alexander justly ascribes to it, of almost instantly retarding the velocity of the circulation, and of surprisingly diminishing the number of pulsations; but it should be given immediately after being dissolved, as the same gentleman has observed, that it then [140] possesses that power in a greater degree. In constitutions that are subject to acrid putrid bile, nitre is improper, as it generally disagrees with the stomach.

If the discharge of the lochia be moderate, the patient should not only sit up often, but should every day get out of bed, staying up as long as she can without fatigue, and continuing it a little longer every day than she had done the day before. A very convenient easy chair has been invented, to which a foot-board is adapted, not only preserving the legs and feet from cold, but by the means of two straps, so contrived that the back of the chair may be depressed, and the footboard raised at pleasure. By means of this contrivance, if the patient is faint or fatigued with sitting up, she may be greatly relieved, and her posture made as easy as possible. As the chair runs upon castors,

increase the circulation, that all muscular motion should be avoided for the same reason.'—Hewson's Experimental Inquiry, p. 100.

Dr Dickson, in the Med. Obs. and Inq., vol. 4, art. 16, p. 220, speaking of nitre given in the form of an electuary with conserve of roses, says, ' I have found *nitre* too administered in this manner of singular service in *uterine hæmorrhages*, but only so far, if my observation is correct, when there was a feverishness and hardness of pulse ; for in other cases the *elix. vitriol. acid.* given in small quantities, and very frequently repeated, was attended with much greater benefit.'

it may be readily moved, and by its assistance [141] the patient may be enabled to continue a long time out of bed without inconvenience.

* * * * *

Let [149] the directions I have given be strictly observed, and I will venture to assert that there will be neither puerperal nor miliary fever, nor will the milk fever be worth notice, except it be her first lying-in. This may be said to be a bold assertion. I am well aware of the uncertainty of the medical art, and of the difficulty of ascertaining facts, especially by those who, neglecting nature as their guide, seem rather to take pleasure in obstructing her in her operations. I know likewise the difficulty there is in bringing patients to conform to proper directions, and the still greater one in inducing nurses, and other attendants to follow the rules which are prescribed them. [150]

I am not now amusing the public with idle theories, and speculative reasonings; I am treating on an affair of consequence, not only to the female sex, but to mankind in general. I speak from facts, from facts which cannot deceive me, founded upon my Father's experience of more than fifty years, and upon my own of above half that period. I appeal to the inhabitants of this town and neighbourhood, where if I be guilty of misrepresentation, I must meet with the imputation I deserve.

It would be easy to produce a long list of successful cases; successful cases avail nothing, where the

unsuccessful are concealed. It is evident that by much the greater part of the sex will do well, even under the worst of treatment. The practitioner therefore can only judge from the result of general practice; and here for the sake of the most import[151]ant argument I can use, I am obliged to refer to a fact, which otherwise could scarcely be mentioned without a shew of ostentation which I despise. Out of the whole number of lying-in patients whom I have delivered (and I may safely call it a great one) I have never lost one, nor to the best of my recollection, has one been greatly endangered, by the puerperal, miliary, low nervous, putrid malignant, or milk fever ; nor have any of these fevers ended in madness,[1] or any other disagreeable complaint. Some few indeed [152] have had the puerperal fever, but this has evidently arisen from non-observance of the rules above laid down. Some few, too, have had miliary eruptions, proceeding from the same cause, though not one, unless my memory greatly fails me, ever had what properly might be called a miliary fever. Where feverish symptoms have appeared before delivery, they have been happily extinguished. The reader may perhaps imagine that by a different treatment disorders may take different forms, and appear

1. 'It is not only in lying-in cases that madness is sometimes a consequence of the neglect, or ill-treatment of this fever, for, in other persons it too often terminates in that manner. It is therefore well worth observing, since experience confirms the fact, that this sort of madness, which follows this low fever, will by no means yield to the common methods for the cure of madness, because great evacuations, as purging, vomiting, and especially bleeding, always heighten the disease, and soon either destroy the patient, or bring on an incurable foolishness.'—Etherington on Fevers, p. 41.

under different denominations. That I may not seem to shelter myself under so poor a subterfuge, I am necessitated to make a further declaration. I never lost a patient either during her month, or at any other time, where there was the least reason to imagine her death was the consequence of her lying-in. It must however be remembered, that in this last declaration I speak only of natural parturitions. I would by no means be understood to in[153]clude in this account præternatural cases, or such laborious ones as have required the use of instruments; those of floodings, or convulsions, or those in which consumptions have taken rise before the patient's time of delivery. I only mean likewise those patients whom I have myself attended during the time of delivery. After fevers have been created I have been unsuccessfully called in to those delivered by others. I have however the pleasure to observe that those fevers, in this neighbourhood at least, have of late years greatly decreased. This must chiefly be attributed to a system of management lately introduced, much to the honour of our present practitioners, and of those nurses who seem sensible of the advantages arising from it; and I must here do my brethren the justice to assert, that I do not know a place where midwifery is more successfully practised. Perhaps some general causes may contribute to this success amongst the *poor* in this [154] town, viz., their eating very little animal food, and living chiefly upon vegetables. Potatoes are a principal part of their diet, on account of their goodness and cheapness in this

country. We have butter-milk likewise in the greatest perfection, and it is drank by the common people both in sickness and in health. This liquor when properly managed has a pleasant acidity, and very happily contributes to prevent and cure any disorders arising from putridity. In many parts of this kingdom it is so ill prepared, that the poor people will not drink it, and it is either thrown away or given to the swine. We are likewise well supplied with coals, which is an article of consequence, as fires prevent moisture, and keep up a circulation of air, and there is little danger of the poor people keeping such large fires as to be overheated by them. Does not the pump water[1] of this place by being [155] impregnated with selenitical and aluminous salts contribute in some degree to prevent putridity, whatever bad effects it may have in promoting disorders arising from glandular obstructions ? It may be worthy of observation that dysenteries are almost unknown in this town.

Is it not one cause of the frequency and fatality of the puerperal, jail, hospital, and other putrid fevers, in London, that so many of the inhabitants drink, and use for most culinary purposes, the New River water, which is frequently replete with putrid vegetable and animal substances, or the Thames water,[2] which is full of all kinds of putrid matter ? [156]

1. *Vide* Dr. Percival on the Pump Water of Manchester, Essays Med. and Exp., p. 288.

2. 'Most pump water is as incapable of changing and of being spoiled by keeping as distilled water; for though it be loaded with various foreign particles, yet it seldom has any, or at most but a small

It may seem strange, but it is nevertheless true, that the puerperal and miliary fevers are more common and more fatal in London than in the country; and yet it must be acknowledged that in general the ablest men in every branch of the profession resort to the metropolis: but our wonder will cease when we reflect that not only the general causes in large populous towns will operate, but likewise that the articles of air, diet, dress, &c., are left to the management of the nurses in that city, who claim it as a kind of prerogative, and it is next to sacrilege to encroach upon their privileges. Whether this circumstance has been considered in the important light it deserves, or whether the success of a reformation has been despaired of, I will not pretend to

proportion of a vegetable, or animal nature, and therefore it will always remain the same. This property of water is not so much attended to as it ought to be by sailors, who usually supply their ships with river water taken up near great cities, and then keep it in wooden casks: the necessary consequence is, that it soon putrefies, and most probably contributes very much to the occasioning of those putrid distempers with which sailors are so apt to be afflicted. Pump or spring water would be greatly preferable, and if they could keep this in glass or stone bottles, or earthen jars, they would find it, after being carried round the world, just the same as when they set out.'—Med. Trans., vol. 1, p. 19, by Dr. W. Heberden.

'The great tendency in the Thames water first to ferment, and then to become pure, in long voyages is well known, and it is probable that this quality is owing to the extraordinary quantity of putrid matter with which it is impregnated at the place where it is taken up, viz., a little below London bridge.'—Pringle's Appendix, p. 67.

Sir John Pringle, in his Observations on the Dysentery says, 'Having observed in my private practice that some were better for drinking Bristol water, not only at the spring, but at a distance, I desired one of my patients (who had come from the Havannah) to observe whether he found any difference between drinking the river water and the pump water in this city; and after some trials he assured me that he was less liable to a return of his flux when he used the latter.'—Obs. on the Diseases of the Army, p. 285.

determine. The nurses in London are a numerous and powerful body, and an attempt to reform their ancient customs might be looked upon as an open attack upon them, a violation of their rights, and an actual declaration of war. A young man just [157] coming into business might justly think it too daring to attempt to encounter them; he would in all probability be unequal to the task, and his future progress would be stopped, by making such powerful enemies. The man in full and established business could not perhaps spare so much time as would be necessary, for it would require a very frequent and constant attendance upon his patients to see that the nurses did their duty; and by such an attempt he might lose much, and gain little except trouble and opposition.

But the fatality of these fevers is not confined to the metropolis. There are several country towns where puerperal fevers are very fatal, particularly the town of Northampton, a place otherwise remarkable for its healthfulness, and situated in an open, champaign country; and I am acquainted with two gentlemen in another town, where the whole [158] business in that branch is divided betwixt them, and it is very remarkable that one of them loses several patients every year of the puerperal fever, and the other never so much as meets with the disorder; but their methods of treating their patients, as I am informed, are very different.

From what has been above remarked, I imagine it will appear that where a due observance is paid to nature, not only during labour, but for some time

afterwards, there is not the least danger to be apprehended from natural parturitions; that most, if not all of those disorders which are usually supposed to be peculiarly incident to the puerperal state, are either the effects of mismanagement in the accoucheur or nurses, or else arise from the patient's own imprudence; that they may in general be truly said to be fabricated, and may always, except in lying-in hospitals, be avoided. [159]

In hospitals indeed, where numbers are crowded together not only in the same house, but in the same ward, the puerperal fever cannot so easily be prevented, though the miliary fever undoubtedly may. [160]

* * * * * *

I [169] am afraid no methods will be effectual where several lying-in women are in one ward. It will be impossible to keep the air pure, dry and sweet, and at the same time to accommodate the heat of the ward to their different constitutions and symptoms. If separate apartments cannot be allowed to every patient, at least as soon as the fever has seized one she ought immediately to be moved into another room, not only for her immediate safety, but for that of the other patients. Or it would be still better if every woman was delivered in a separate ward, and was to remain there for a week or ten days, till all danger of this fever was over.

* * * * *

Whenever[173] a patient has recovered from this fever and is removed into another room, the bedding and curtains should be washed, the floor and woodwork should be cleansed with vinegar, and it would still add to the salubrity of the apartment, if it was stoved with brimstone, or what is much more effectual, if explosions of small quantities of gun-powder were made in it after the manner described by Doctor Lind, which driving out the foul air, a fresh current immediately rushes in to fill up the void space occasioned by the explosion. The Doctor seems to think that the good effects of it in purifying ships, or other infected places, is owing to the antiseptic vapour arising from it; but is it not more probably owing to the explosion? He says he has found this method effectual in purifying the air, and that it is inoffensive to the lungs. The steams of warm vinegar applied to the patient's nostrils are very refreshing, but fu[174]migating the wards with it as has been advised by many authors, has not I believe proved so antiseptic as was at first imagined, which may be owing probably to the following cause.

In distilling vinegar it is very well known that what comes over at first is mostly mucilage and water, to the amount of a third or fourth of the whole quantity; this is generally thrown away as useless, and the very acid parts which are supposed to be productive of the greatest good, are not to be raised without a very considerable degree of heat. So much watery steam therefore being diffused all over the room, may tend to increase those complaints it was designed to remedy;

for it is universally allowed that heat and moisture when joined are the parents of putrefaction.

I have my doubts in regard to the [175] utility of dry or moist fumes, or sprinklings in general, such as camphorated vinegar, tobacco, nitre, pitch, tar, resinous or aromatic gums, sulphur, or frankincense, during the patient's stay in the room. Without the free admission of air I am apprehensive they will operate to no good purpose. If a sufficient quantity of free air be admitted they will seldom be necessary. And if by their means the air is either heated or moistened, they will certainly be prejudicial; but all these methods may be used with advantage if there be no patient in the room. [176][1]

1. I do not reproduce Chapter VII—'Of the Cure of the Puerperal Fever.' It deals with the management of the cold fit, the burning fit, the value of emetics (ipecacuahna and antimonical preparations), of clysters, effervescent medicines (salt of wormwood and lemon juice), cold acidulated liquors, etc., the harmfulness of sweating and emmenagogues, and the doubtful value of bleedings.

AN

APPENDIX

TO THE

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ON THE

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AND

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TO THE

SECOND EDITION

THE most material improvements which the preceding Volume has, I flatter myself, been a means of introducing into the management of pregnant and lying-in women, are the following. 1st. The use of a cold or temperate bath during the state of pregnancy, and [2] that of giving suck. 2dly. Permitting the shoulders of the child to be expelled by the labour pains only, instead of hurrying them away forcibly in one direction without suffering them to accommodate themselves to the dimensions of the pelvis by making their proper turns. 3dly. Allowing the circulation betwixt the child and placenta to cease spontaneously, instead of immediately intercepting it, as soon as the child is delivered, by tying the navel-string. 4thly. Placing the woman in an upright position as early after delivery, and as frequently as possible. These are all points which deserve an attentive consideration; and as an additional experience of four years has enabled me to speak of them with still greater confidence, and to enforce them by later observations, I shall include what I have further to communicate on these subjects,

toge[3]ther with some additional remarks upon the puerperal fever, in an appendix.

I. In the body of this work I have strongly recommended the use of the cold, or rather temperate bath in preventing miscarriages, and many other disorders incident to the pregnant state. I can now confirm the efficacy of this preventive remedy from ample experience, in a great number of different constitutions. So efficacious, indeed, it has proved, that I have not known a single instance of its failure, except where the patient has received some violent injury. This was the case with a lady who miscarried in consequence of a fall down stairs ; but returning afterwards to the use of the bath, she conceived again ; and continuing the bathing the whole period of gestation, became the happy mo[4]ther of a fine child, though she had before met with frequent disappointments.

I must here likewise confirm what I before observed concerning the excellent effects of the same remedy in increasing the secretion of milk, and preserving the health during the time of suckling ; and particularly in preventing the colds to which nurses are so liable. Several ladies of my acquaintance are so sensible of these benefits, that they constantly bathe three or four times a week while pregnant and giving suck, intermitting it only during the month of their lying-in, and some scarcely so long.

It is a just and important observation which Dr. Hunter makes in his lectures, that " although

women usually miscarry at eleven or twelve weeks, the fœtus has [5] generally been blighted, or removed out of the circulation at seven or eight weeks." This fact suggests an essential remark concerning bathing, that if it be not begun before the term at which the uterine fruit is generally blighted, no good can be expected from it in preventing miscarriage.

II. The common practice of pulling at the child's head the instant it is born, and thereby preventing the shoulders from making their proper turns, is productive of more bad consequences both to the mother and child than might at first be apprehended. The child is a sufferer, as well by overstraining the muscles of the neck in the action of forcibly dragging it forwards, as by the pressure of the shoulders against each side of the chest, whilst they pass through the bones of the pelvis in a wrong direction. It is [6] obvious that by these means its shape will be greatly altered, perhaps so as never perfectly to recover itself; which may lay the foundation of various diseases. The effects on the mother are probably more pernicious in stretching and relaxing the ligaments of the womb, the internal coat of the vagina, and the other parts subservient to generation; whereby prolapsuses of the vagina and anus, and a train of other disagreeable complaints may be occasioned. But there are, I am persuaded, more immediate bad consequences accruing to the mother. By forestalling nature in the expulsion of the child, the pains are so weakened as to be rendered insufficient to expel the placenta. Before I became

sensible of the absurdity of this mode of practice, I was frequently obliged to extract the placenta by manual operation; but for many years past this has never [7] happened to me in any case where I myself had delivered the child. Gently pulling at the *funis* has always proved sufficient for the purpose; and from analogical reasoning I should conclude that even this slight assistance would be unnecessary, were not the generality of women in our age and country in a state very unfavourable to the full exertion of their natural powers. By the too hasty delivery of the child likewise, afterpains are occasioned, as by this means the mouths of the sinuses or uterine veins are permitted to close too suddenly.

III. In the year 1775 a gentleman in London, of deserved eminence in his profession, printed a short paper which he intended to put into the hands of every practitioner of midwifery with whom he was acquainted. Its purport was to recommend a method, which he supposed [8] to be new, of managing the navel string at the time of delivery. He had communicated his observations on this head to his pupils the winter before; and had shewn the paper in manuscript to several medical gentlemen who all approved of it, as inculcating a new and useful mode of practice. A few days after the paper was printed, he was much surprised when shewn by a student that I had recommended in such explicit terms, and from similar motives, the same practice. He immediately wrote me a very friendly letter, and inclosed one of

the papers. As many of my readers may not have seen this little tract, and the point proposed is very ingeniously maintained by the author, I shall without apology reprint it entire.

[9] AN OBSERVATION ON THE MANAGEMENT OF CHILDREN AT THE TIME OF BIRTH.

LONDON: PRINTED FOR J. WALTER, CHARING CROSS, 1775

'It hath been a matter of the most serious consideration to those who have had the care of very young children, to see so great a number born dead, or die after an imperfect existence of a few hours or days. With a view of preventing these accidents, which though sometimes unavoidable, have more frequently seemed to be owing to mismanagement, I presume to recommend a method, which, as far as my experience enables me to judge, is much preferable to that which is usually followed.'

[10] 'To explain my opinion, I will call the life of a child *in utero* fetal life, and the life which is consequent to respiration, animal life.'

'From very hard and tedious labours, and from other causes, children will sometimes be born without any apparent signs of life. But if we apply the hand to the side; or examine the navel string, we shall often be sensible of a strong and regular pulsation in the heart, or in the arteries of the navel string.'

'Under such circumstances it hath been thought proper to treat the children as apoplectic; and with

a view of preventing those ill consequences, which were apprehended from the accumulation of blood in the brain, it has been judged necessary to divide the navel string, and to suffer the vessels to discharge a small quantity of blood.'

[11] 'This method I have repeatedly tried, and the almost uniform consequence has been the death of the child. In many instances, when children have breathed or even cried, on tying the navel string they have drooped and died, or afterwards have been recovered with great difficulty.'

'Nor shall we be surprised at the event, if we consider that in such a state, the life of the children was merely fetal, in the same manner as if they were yet *in utero*.'

'By dividing or tying the navel string, the fetal life was instantly and entirely destroyed, and the children not having acquired animal life must inevitably perish.'

'The fetal life and the animal life, never exist in perfection at the same [12] time; but as the animal life improves, the former gradually declines, and is at last destroyed.'

'Thus when a child is born with signs of the most perfect life, there is a pulsation in the arteries of the navel string. If the child should continue to breathe or to cry, this pulsation abates, and in a short time entirely ceases.'

'Should a child be born very feeble, and neither breathe or cry, the pulsation of the arteries of the

navel string, may nevertheless be often perceived, till the child acquires perfect animal life, or till it be entirely dead.'

'It is curious to observe the manner in which the pulsation of the arteries of the navel string declines. It first ceases in that part which is nearest to the mother, and the column of blood is thrown at every stroke of the heart of the child, [13] to a less distance; so that at last, the blood which circulated in the fetal part of the *placenta*, resides in the child.'

'The pulsation of the arteries of the navel string, proves the existence of the fetal life. The existence of the fetal life proves the imperfection of the animal life. While the animal life is imperfect, the fetal life ought not to be destroyed.'

'The navel string therefore should never be divided or tied, while there is any pulsation in its arteries.'

'Another method has been advised for the recovery of children born apparently dead. Instead of dividing the navel string, it has been recommended to press the blood contained in it from the mother, towards the child.'

'But this method may produce inconveniences of another kind; for if [14] much force be used, it seems possible, absolutely to prevent or to suppress the action of the heart of the child. As we are ignorant whether the inactivity of the heart proceeds from a defect or an excess of blood, it is not prudent to interfere with the efforts or proceedings of nature,

lest we should impede or interrupt rather than forward her operations.'

'I have only considered the treatment of children newly born, as favourable or unfavourable to their immediate recovery. It is not however unreasonable to suppose that the wrong management of children at the time of birth, may be the cause of many of the diseases to which they are subject. For if they are prevented from acquiring perfect animal life, and are, immediately after birth, deprived of a certain quantity of blood, which may, at least, be esteemed the medium by which life is preserved, we cannot wonder that they are more liable to [15] diseases, and less able to struggle with the attending danger.'

'I should not hesitate to declare my opinion, that many of those diseases of more advanced age, which have been esteemed hereditary, may have been occasioned by imprudent management at the time of birth; for those constitutions must necessarily be infirm which were never in possession of perfect life.'

IV. The presence or absence of the puerperal fever being, as I conceive, very nearly connected with the maintenance of a horizontal or an upright position after delivery, I shall under this head comprise what I have to add concerning both these subjects.

Writers are still much divided in their opinions of the cause, and even of the nature of the puerperal fever; some [16] ranking it under the class of inflammatory, some of putrid diseases, some calling it a

mixture of both, and some a fever *fui generis*. The very attempt to class it has been attended with some disadvantages by rendering the difference of opinion concerning it greater, and what is worse, by influencing practice. Dissections themselves have not assisted much in clearing up this matter, as the appearances have not been always similar, and different conclusions have been drawn from the same appearances.[1] It is obvi[17]ous that till some greater certainty be obtained with regard to the cause and nature of this disease, all attempts towards a rational method of prevention or cure will be vain.

1. The following observations of my worthy friend Mr. J. Hunter may not perhaps be here improperly introduced.

'An accurate knowledge of the appearances in animal bodies that 'die of a violent death, that is, in perfect health, or in a sound state, 'ought to be considered as a necessary foundation for judging of the 'state of the body in those that are diseased.

'But as the animal body undergoes changes after death, or when 'dead, it has never been sufficiently considered what those changes are; 'and till this be done, it is impossible we should judge accurately of 'the appearances in dead bodies. The diseases which the living body 'undergoes (mortification excepted) are always connected with the 'living principle, and are not in the least familiar to what may be called 'diseases or changes in the dead body: without this knowledge, our 'judgment of the appearances in dead bodies must often be very 'imperfect, or very erroneous; we may see appearances which are 'natural, and may suppose them to have arisen from disease; we may 'see diseased parts, and suppose them in a natural state; and we 'may suppose a circumstance to have existed before death, which 'was really a consequence of it; or we may imagine it to be a natural 'change after death, when it was truly a disease of the living body. 'It is easy to see therefore, how a man in this state of ignorance must 'blunder, when he comes to connect the appearances in a dead body 'with the symptoms that were observed in life; and indeed all the 'usefulness of opening dead bodies depends upon the judgment and 'sagacity with which this sort of comparison is made.' Phil. Trans, vol. 62, p. 447 and 448.

There are, however, some particular [18] symptoms attending it, which if accurately investigated, may greatly assist our inquiries, The most distinguishing inseparable symptom of all others is the *quickness*[1] of the pulse, whatever other [19] quality be joined to it, which constantly occurs whenever this fever exists in

1. 'The pulse has almost an invariable and unusual quickness from the beginning.'

DENMAN.

'In the cold fit the pulse was quick and small, and the pulsations so feeble and indistinct, that sometimes I was hardly able to number them exactly. When the hot fit came on, though it was then more full and distinct, it still remained quick, but was seldom hard or strong, except in a few instances, where the patient was young and plethoric. In general, it would beat from *ninety* to *one hundred and thirty-seven* strokes in a minute.'

Leake on the Child-bed Fever, &c., p. 45 & 46.

'As they became more and more exhausted, and within a few hours of death; the pulse, which was exceedingly quick, and almost imperceptibly weak, at last was insensibly lost in a tremulous flutter.'

Ibid, p. 50.

'The pulse, in general, is quick and weak; though sometimes it will resist the finger pretty strongly. At the beginning of the disease, it seldom beats less than a hundred strokes in the space of a minute; and from this number, I have found it run on to one hundred and sixty.'

Hulme on the Puerperal Fever, p. 5.

'Nay, so infallible is the beat of the pulse, with respect to number, that though all the other symptoms should abate, and the disease seem to be gone off, yet if the pulsations do not decrease in proportion, a relapse, or some other disorder, is to be feared.

'A diarrhœa coming on at the beginning, if followed by a slower pulse, prognosticates safety. But if after evacuations by stool, whether procured by nature or art, the pulse should not become slower, it is to be reckoned as one of the most dangerous symptoms.'

Ibid, p. 31 & 32.

'They are commonly taken as with an ague fit, there is a strong shivering with a great heat, which is succeeded by a pain in the limbs and back, and a violent hurrying pulse.'

Hunter's M.S. Lectures.

any alarming degree; and from which the degree of danger may be estimated more certainly than from all the other symptoms put together. This immode[20]rate quick pulse is not the constant attendant of inflammatory, putrid, nervous, or eruptive fevers; but every surgeon conversant with business knows that it never fails to attend absorption of matter from abscesses or ulcers, whatever be the other concomitant symptoms, or the quality of the matter. The physician also knows it is constantly present in ulcers of the lungs, and other internal parts of the body.

In lumbar abscesses, and those of the larger joints, it is no uncommon thing for the patient to remain in a state of perfect health till the abscess be opened either by art or nature, and the airs gets admission. But in a few days after this, pain, soreness and tenderness of the neighbouring parts, or perhaps of the whole body, are perceived; a fever supervenes, sometimes preceded by cold shiverings, and succeeded by burning and sweating; at other times creeping on insensibly, but [21] always accompanied with an immoderately quick pulse: a diarrhœa and pains in the abdomen frequently follow; and the progress of the disease is so rapid, that sometimes in ten or twelve days, notwithstanding the use of every remedy, death closes the scene. In crowded hospitals these symptoms occur with much greater violence than in private practice. If the diseased part be so situated as to be removeable by amputation, and this operation be performed before absorption has taken place, or has

proceeded too far, all this train of symptoms may be either entirely obviated, or removed by it; and I have seen many cases in which, after the patient, from too great delay, had been brought to the brink of the grave, the application of sponge to the stump, according to the method described by Dr. Kirkland, has occasioned a perfect recovery; the quickness of the pulse being immediately abated, and all the other symptoms allevia[22]ted, as soon as the sponge by imbibing the acrid or putrid matter had prevented its absorption.

Let us now inquire what further circumstances there are, besides that of the quick pulse, to make it probable that the puerperal fever is occasioned by absorption. Notwithstanding the several writers whose attention has been of late so much excited by this fever have differed considerably concerning the cause of the disease, and the method of cure, they have certainly observed its appearances with great accuracy, and described them with equal minuteness and fidelity. Their observations may therefore be referred to as sufficient authority, and the following are of much weight in the opinion I mean to establish.

Dr. Denman[1] says 'she also feels [23] great pains 'in the back, hips and groins, and sometimes in one 'or both legs, which swell, appear inflamed, and are 'exquisitely painful.' A little further he says, 'In 'some there will be a translation of the disease to the 'extremities, where the part affected will become 'inflamed, and a large abscess be formed.' In

1. Essay on the Puerperal Fever, 2d Ed., p. 9.

another place he says, 'Should abscesses be formed in 'the breasts, they are always much lamented, but 'there is great reason to conclude, that they prevent 'more grievous and dangerous complaints.'

Dr. Leake says[1] 'some of those who survived 'recovered very slowly, and were affected with 'wandering pains, and a paralytic numbness of the 'limbs, like that of the chronic rheumatism. Some 'had critical abscesses in the mus[24]cular parts of the 'body which were a long time in coming to suppuration 'and when broke discharged a sanious ichor.'

Again, 'Those who were seized with this fever 'were not subject to abscesses of the breasts, and of 'those who happened to have such abscesses, I have 'never known one to die; neither are they subject 'to a diarhœa, or much symptomatic fever, although 'the pain attending a suppuration of the breast is 'often very acute.'

If to these considerations we add, that as the puerperal fever is more fatal in large cities and crowded hospitals than in places where the air is more open and pure, so is the fever occasioned by absorption of matter—that as the former is more fatal in some peculiar constitutions of the air than in others, so is the latter—that as the puerperal fever does not [25] appear till after delivery,[2] so neither does absorption of matter from an abscess till it be opened and the air

1. Practical Observations on the Child-bed Fever, 2d. Edit., p. 59.

2. 'Till such a change is produced, women are not subject to this fever; for I have observed, that those with child, who assisted the nurses in attending the sick, were perfectly free from it, even when it

have access—we may, I think, with a good degree of certainty conclude that the absorption [26] of matter is the immediate cause of the puerperal fever, as well as of that consequent upon abscesses and ulcers. This matter is either carried off by some of the emunctories, as by stool, which is the most frequent, by a fresh flow of the lochia, or by sweat; or else it is deposited upon some part of the body. If in the cavity of the abdomen, upon the lungs,[3] [27] the liver,[4] or upon any of the viscera, it generally proves fatal; if upon the breasts, the limbs, or any of the external parts, the patient always recovers.

Let us next enquire what is the source of the matter

was most rife; but being delivered, several of them sickened soon after, and were affected with the same symptoms as the rest.'

LEAKE, p. 88.

Some are of opinion that there are not wanting instances of the puerperal fever being formed before delivery: but may not these suggestions arise from sometimes observing cold shiverings before and during the time of labour; and if a puerperal fever come on soon after delivery, might they not conclude that those cold shiverings were symptoms of that fever? But these I have so frequently seen without the puerperal fever supervening, or the least bad consequence ensuing, that I am certain they are not to be depended on. Women however *before* delivery are nor exempt from other fevers, and *after* delivery those fevers may change their type and degenerate into the puerperal; nay, I even think it more than probable that if there be a fever of any kind at the time of delivery, it may occasion an absorption after delivery, and so bring on one of the puerperal kind.

3. A cough, shortness of breathing together with pleuritic and peripneumonic symptoms frequently occur in this disease, and morbid appearances in the chest have been found upon dissection.

'It is almost needless to remark that this fever must, of course, be complicated with any disorder that the patient might happen to labour under at the time of child-birth. The chief that I have met with in this way of any consequence, hath been the *phthisis pulmonalis*. If any disease hath taken its immediate origin, as it were, out of the

thus absorbed. That the increased bulk of the uterus in the latter months of pregnancy should, by its pressure on the intestines, obstruct the free discharge of the excrements, may readily be conceived, and is known, by every practitioner, frequently to happen. Dr. Denman[5] has a very just obser[28]vation relative to this. Speaking of the stools in the puerperal fever, he says, 'they are very fœtid, of a green or dark brown 'colour, and working like yest, and it is remarkable, 'that after the long continuance of the looseness, 'when the patient has taken little nourishment '*large and hard lumps of excrement* will be sometimes 'discharged; which one might suspect to have been 'lying in the bowels a long time before delivery.' He is so particular in this observation, that he repeats it in another place.

puerperal fever, and been combined with it, it hath been the peripneumony. I have met with several instances of this kind.'

HULME, p. 15.

'Both lobes of the lungs were inflamed, and somewhat black, particularly in their most dependent part.' *Ibid.* p. 41.

—— 'adhesions of the lungs to the pleura; a collection of putrid serum in the thorax, and matter under the sternum, as in the case of Harriot Trueman —— on enquiry of the patient's friends, I could not find that she had ever been in the least subject to any complaint in the breast.'

LEAKE, p. 93.

4. 'In una, quantum comperi, jecur erat mollis, enormis, et postquam perscissum est, abcessum continere repertum.'

Diss. Med. Inaug. de Febre Puerper. Patr. Keary Edin. 1774, p. 8.

DR. HULME, p. 43, says, 'The liver was of an extraordinary magnitude; in the right lobe was found a very extensive abcess.'

5. *Ib.*, p. 13.

The horizontal position to which women are so frequently confined after delivery, greatly favours an absorption of the *lochia.* As this matter seems but imperfectly understood, no proper distinction having been made between the *absorption* and *obstruction* of the lochia, I shall beg the readers patience while I attempt to give my ideas of it somewhat at large.

[29] Writers agree that the puerperal fevers attacks indifferently persons who have had a small, or a large discharge of the lochia. This is a well-founded fact; but from hence they have concluded that the lochia can have no share in producing the disease—a conclusion to which I cannot assent. In other cases it is constantly found that matter will be absorbed, whether the discharge be small or great; and, what may seem extraordinary, it is frequently seen that where the discharge is in the largest quantity, the absorption is most considerable. But absorption may in all cases be increased, and in some entirely caused, by such an unfavourable position as may occasion the matter to lodge in a wound, where growing acrid it will produce inflammation and fever by its irritation. By the application of sponge, an incision in the most depending part, or mere alteration of position, these symptoms frequently soon disappear; the matter becomes more laudable, and is even diminished in quantity. We shall pre[30]sently see how these observations apply in the puerperal fever.

That accurate anatomist, Dr. Hunter, has discovered the false or spongy chorion, called by him the *caduca*

or *membrana decidua*, to be a *lamella* or efflorescence of the womb, which peels off from it like a slough at each successive birth. It is an opaque membrane, thicker than the true chorion, and exceedingly tender in its texture, being hardly firmer than curd of milk or coagulated blood. It is however vascular, having vessels which carry red blood, from the uterus. It is not to be injected by injecting the placenta, being not a fœtal, but an uterine part. After delivery, the greatest membrane is left behind, grows putrid, gradually dissolves, and comes away in a fluid state along with the cleansings. It frequently however, is so long in separating, that on dissection[1] of several who have died of [31] the puerperal fever, the inside of the uterus has been found lined with it; and it has been of so black a colour, that the womb itself has been supposed to be mortified, till the mistake was discovered by wiping off this substance. Thus we have a matter entirely fitted for absorption; and as the communication between the mother and child is carried on not by continuity of vessels between the placenta and uterus, but a reciprocal absorption of blood by means of patulous orifices, we may conclude that the womb is an organ of all others the most favourably formed to absorb.

That patients in this fever should generally complain of pain and soreness at the lower part of the belly; and that the omentum, peritonæum and intestines

1. See Leake, p. 75 & 179.

should, frequently, be first and principally affected, and on dissection be found inflamed, suppurated or gangrened, might naturally be expected from their contiguity to the source of the absorbed matter. [32] These are the common consequences of the deposition of acrid matter upon a tender part. But the inflammation excited in this manner in a relaxed habit, and happening frequently after a considerable loss of blood, is very different from one occasioned by obstructed perspiration, in a plethoric habit, where no considerable evacuation has preceded. Dr. Leake relates the case of Sarah Evans, p. 224, who was of a very delicate irritable habit and lax fibres; she was seized with this fever on the third day after delivery, when her skin was moist and her pulse quick and weak; she died on the 12th day. On opening the body, evident marks of inflammation appeared, particularly in the abdomen; a great part of the omentum was destroyed and converted into matter, and what remained was become gangrenous, &c.— The Doctor makes the following remark, 'Where the 'pulse was extremely soft and weak and the circulation 'languid; it is difficult to account [33] for so sudden 'and high a degree of inflammation as to produce a 'collection of matter, or any inflammatory affection 'of the abdominal viscera, but so it was.'

In another place, he says, 'Considering the languid 'state of the patient, and the weakness of the pulse, 'even in the beginning of this fever, I was surprised 'to find that the inflammation had sometimes run so

'high, and made so rapid a progress as to produce 'matter in the abdomen, so early as the *fourth* or *fifth* 'day after the first attack; as will appear in the case 'of Harriet Trueman.'[1]

He also observes,[2] 'that in the winter months, when 'the child-bed fever began, the weather was observed 'to be remarkably mild and moist, with a warmer 'temperature of the air than was natural to the 'season.' But it is [34] well known that true inflammatory disorders prevail most in cold dry easterly winds.

In regard to the prevention and cure of this fever, there is not, I believe, a man of eminence in the profession who is not thoroughly convinced of the necessity of pure, free, and even cool air; though perhaps their directions on this head are seldom so strictly put in execution as might be wished. But there is another point of practice which is by no means hitherto settled; this is the position of the patient for some time after delivery. Several of the first accoucheurs and principal nurses in London keep their patients in bed for five or six days, or more, without ever permitting them to get out of it, and what perhaps is worse, without suffering them to sit up in bed, or even raise their heads from the pillow. And one gentleman, deservedly of high character in the profession, in a late publication has declared,

1. Leake, p. 106.

2. *Ibid*, p. 37.

' that in his own practice he [35] has seen more frequent instances of the puerperal fever from early sitting up than from all other accidental causes united.' Were this, however, the real cause of puerperal fevers, it would be astonishing that any of my patients should escape them, as I constantly direct them to sit up in an hour or two after delivery, and to repeat it as frequently as possible, and even to get out of bed in less than twenty-four hours; and it is seldom that they exceed this period. One lady, indeed, whom I attended in two lying's-in, lay in bed five days each time, and in one of them was for the most part confined to a horizontal posture; and in that she had a puerperal fever; whereas this disease has very rarely occurred among others whom I have delivered, and has never once proved fatal. Perhaps in London it may be thought early to sit up in one day after delivery, or to get out of bed in two or three. Now if a horizontal position has been constantly maintained for that time, and the seeds of the puerperal [36] fever have been thereby sown, the sudden change of posture and of cloathing may perhaps make it shew itself somewhat sooner than it would otherwise have done; and this I think I have seen.

I have taken some pains to inquire both of the gentlemen of the faculty, and the most intelligent nurses, whether they had other reasons besides that already mentioned for keeping their patients so long in a horizontal posture; and as far as I can learn, early sitting up occasioned, as they imagined, a prolapsus

of the vagina, or bearing down, as it is commonly termed. But I have already declared my opinion that this complaint is generally owing to a quite different cause, the forcible extraction of the shoulders of the child: and I can affirm in the most positive manner, that early sitting up has never produced it in the slightest degree, in those whom I have delivered.

[37] That a horizontal position should promote that absorption of matter which I consider as in great measure the cause of puerperal fevers, will appear probable from various considerations. The weight of the uterus in this posture carries it close to the vertebræ, and causes its sides to approach each other, so as to render its figure flatter; by which means its contraction must be impeded, and consequently the expulsion of its contents retarded. The discharge of the lochia, too, is not, in this case, assisted by gravitation; hence they will be apt to lodge and stagnate in the transverse rugæ of the vagina. Whereas an upright position produces effects the contrary to these. The uterus pressing forwards upon the soft *parietes* of the abdomen will meet with no obstacle to its contraction; and the lochial discharges, finding a ready exit by a depending orifice, will drain off as soon as they have acquired sufficient fluidity.

[38] An observation from natural history may be adduced in confirmation of this idea of the different effects of an upright and a horizontal posture. No quadrupeds are found to menstruate, except some of the monkey tribe; and of these, according to that

eminent naturalist Mr. Buffon,[1] only such as either habitually or occasionally use an erect posture in sitting or walking, are subject to this periodical discharge.

By the mode of practice which it has been the purpose of the foregoing treatise to inculcate, I have hitherto been able either to prevent, or if called in time to cure the puerperal fever; but when it [39] exists in that malignant endemic form in which it sometimes appears in a lying-in hospital, I fear no method, as yet proposed, will be sufficient to stop its ravages. Under these deplorable circumstances, one remedy, which has not, I believe, been mentioned by any writer on the subject, might be tried without the imputation of rashness. This is a bath of such degree of temperature as only to give a gentle shock. Warm bathing has been used without success. Dr. Leake[2] says, 'One would have imagined that the *warm bath* 'bid fairer to answer this intention than anything 'else, as it acts like a universal fomentation applied 'to the surface of the body; and the rather since it 'has been found to procure almost instant ease in 'other disorders of the bowels; but to the confusion 'of all theory, in those cases where it was tried, it by 'no means answered my expectation; and from [40]

1. 'Le Gibbon Le Magot &c. Les femelles sont comme les Femmes, sujettes a une ecoulement periodique de sang.' Tom. 14.
'Le Coaita, L'exquime &c. Les femelles ne sont pas sujettes a l'ecoulement periodique.' Tom. 15.
'Simia —— Femina menstruat.'
Linnaei Syst. Nat. Vol. I p. 25.

2. *Ibid*, p. 117.

'what I could learn, succeeded no better with others: 'for the greatest part of those died for whom it was 'directed.' That a temperate bath might prove efficacious in preventing the diseases to which lying-in women, from too delicate treatment, are liable, we have some reason to conclude, from the practice which, both in ancient and modern times, has prevailed in many parts of the world, of bathing immediately after, and in some before delivery, in water of the common temperature. Some examples, which might easily have been multiplied, of the prevalence of this custom, are inserted in the notes.[1] Whe[41]ther, while the

1. With respect to ancient testimonies of this practice, we have the following passage in the *Andrian* of Terence, Act III, Sc. 2.

LESBIA.

Adhuc Archillis quæ adsolent, quæque oportet
Signa ad salutem esse, omnia huic esse video.
Nunc primum fac, isthæc ut lavet; post deinde,
Quod jussi ei ante bibere, & quantum imperavi,
Date: mox ego huc revertor.

Madame Dacier's remark upon these lines is much to our purpose. 3. *Nunc primum fac, isthæc ut lavet. La premier chose que vous devez faire c'est de la baigner.* C'etoit la coûtume en *Grece*, des qu'une femme etoit accouchée on la mettoit au bain. Il y a sur cela un passage remarquable dans *Callimaque*, & un autre dans *Lucien*.

The passage in Callimachus here referred to proves that women bathed in a *running stream* immediately after delivery.

Ενθά σ' ἐπεὶ μήτηρ μεγάλων ἀπεθῆκατο κόλπων,
Αυτικα δίζητο ῥόον ὕδατος, ὡ κε τόκοιο
Λύματα χυτλώσαιτο, τεὸν δ' ἐνὶ χρωτα λοέσσαι.

Hic te postquam mater magno deposuit ex utero,
Statim quaerebat rivum aquae, quo partus *sui*
Sordes ablueret, tuumque corpus purgaret.

Some of the most particular and best attested modern accounts of this custom, are the following.

'The Americans that inhabit the Isthmus of Darien, make no difficulty of plunging into cold water when they are in a sweat, to cool

puerperal fever is actually present, this practice might with safe[42]ty or probability of success be employed, I shall not venture to determine. In an [43] obstinate constipation of the bowels, attended with extreme pain, considerable [44] fever, and immediate danger, Dr. Stevenson informs us that a cure was obtained chiefly by dashing cold water upon the lower extremities up as high as the pubes, and plunging the feet into cold water, after the warm bath had failed. *Edin. Med. Eff.* vol. VI. 393. What analogy this case may have to the pu[45]erperal fever, I leave my readers to judge.

themselves; likewise the mothers with their children bathe in cold water immediately after they are brought to bed. This is certain, that they never receive any damage from this custom; whereas, on the contrary, many women suffer greatly in these parts from too delicate a regimen.'

Brookes's Nat. Hist., Vol. 1, p. 175.

The following quotation is taken from *Wafer's* new Voyage and Description of the Isthmus of America, price 2s., printed 1704, now added to Dampier's Voyage, Vol. III, p. 360.

'When a woman is delivered of a child, another woman takes it in her arms within half an hour or less after it is born, and takes the lying-in woman upon her back, and goes with both of them into the river and washes them there.'

Wafer, p. 360.

'The Brazilian women are extremely fruitful, have very easy labours, and rarely miscarry, for no sooner is a woman delivered, but she gets to the next river, and without any further help washes herself there.'

Newhoff's Voyages, p. 151.

'The Tapoyar women cut the navel string with a shell, and wash themselves and their children every morning and evening after delivery.'

Id., p. 154.

The Brazilian women are very fruitful, have easy labours, retire to the woods where they bring forth alone, and return after washing themselves and their child; the husbands lying in bed the first

Since the publication of the former edition of my treatise, I have received a letter from that excellent professor of midwifery, Dr. Young of Edinburgh, containing an account, well worthy the attention of the faculty, of the appearance of the puerperal fever in the lying-in ward of the infirmary of that city. The letter is dated 21st of Nov. 1774, and the following is an extract from it.

'We had the puerperal fever in the infirmary last 'winter. It began about the end of February, when 'almost every woman, as soon as she was delivered, or

twenty-four hours, and being treated as if they had endured the pains. Confirmed by Woods Rogers, p. 57.

'The Californians had adopted that absurdity, which is so much laughed at in the accounts of Brazil, that the women after delivery, used immediately to go to some water and wash themselves and the child; and in other particulars to observe no manner of caution, going to the forest for wood and food, and performing every other service the husband wanted.'

Nat. & civil Hist. of California, translated from the original Spanish of Miguel Venegas, a Mexican Jesuit; published in 1758, *translat.* 1759, *p.* 81 & 82. N.B. The northern point of California is in lat. 46.

——— Long, Esq., one of the judges of the admiralty, in his History of Jamaica, published in 1774, Vol. II, Book III, Chap. 1, p. 380, speaking of the negroes on that part of the African continent, called Guinea, or Negro-Land, says, 'Their women are delivered with little or no labour; they have therefore no more occasion for midwives, than the female Oran-outang, or any other wild animal. A woman brings forth her child in a quarter of an hour, goes the same day to the sea and washes herself. Some have been known to bring forth twins without a shriek or a scream, and it is seldom they are confined above two, or at most three days. Immediately before her labour, she is conducted to the sea-side or a river, followed by a number of little children, who throw all manner of ordure or excrement at her in her way, after which she is washed with great care. Without this cleanly ceremony, the negroes are persuaded that either the mother, the child, or one of the parents, will die during the period of lying-in.'

'perhaps about twenty-fours hours after, was seized 'with it; and all of them died, though every method 'was tried to cure the disorder. What was singular, 'the women were in good health before they were 'brought to [46] bed, though some of them had been 'long in the hospital before delivery. One woman 'had been dismissed the ward before she was brought 'to bed; came into it some days after with her labour 'upon her; was easily delivered, and remained perfectly 'well for twenty-four hours, when she was seized with 'shivering and the other symptoms of the fever. I 'caused her to be removed to another ward; yet 'notwithstanding all the care that was taken of her 'she died in the same manner as the others. I must 'inform you at the same time, that the disease did not 'exist in the town. To account for this distemper in 'the lying-in ward, I must acquaint you that it has 'been a general observation, that the patients in the 'infirmary who had undergone any considerable 'operations, were more subject to erysipelatous 'swellings than formerly. I found that the women 'in the lying-in ward last year did not recover so [47] 'well as formerly, but scarcely any of them died. It 'was these appearances which made me think there 'was a local infection, and determined me to shut up 'the ward till it could be removed. This I did after 'losing six women. I then washed and painted the 'ward, caused all the bedding to be removed, and fired 'gun-powder at different times in the ward. I had a 'number of chaffers filled with cinders, which burnt

'all night; and all the windows were opened 'through the day. This operation lasted about a 'fortnight, when I furnished the ward with new 'bedding, put no curtains to the beds, and by this put 'an entire stop to the disease. The ward was open 'to receive patients in a fortnight from the time it 'was first shut up. The bodies of all the women were 'opened, and we found exactly the same appearances 'as are mentioned by those who have wrote upon that 'disorder. Though the o[48]mentum was often found 'suppurated, yet in none of them was there any 'appearance of a gangrene.'

Several facts of importance in the history of the puerperal fever are contained in this account; particularly—that none of the women were seized with it before delivery, though some of them had been long in the house—that although the disease was so fatal in the infirmary, it did not exist in the town—and that an entire stop was put to it by thoroughly cleansing and new furnishing the ward, so that in a fortnight after it was opened again with safety for the reception of patients. Possibly it may be urged as an argument against absorption, that 'almost every woman as soon 'as she was delivered, or perhaps, about twenty-four 'hours after was seized with this fever.' But I believe this objection will not be found of any force, if we consider that [49] it will not be an easy matter to determine whether the heat, shiverings, or accelerated pulse, which happen in some hours after delivery, are symptoms of a puerperal fever, or merely the

effects of the labour; especially in an irritable habit of body, as these are symptoms which are frequently seen soon after delivery when no fever has supervened; and an absorption may take place in a very few hours.

Mr. Eli Cope, an ingenious surgeon of Leek in Staffordshire, who formerly lived in my house a considerable time as a pupil, and whose veracity may be depended on, has favoured me with a remarkable confirmation, from his own practice, of the safety and advantage of the method of treatment which I have inculcated. From an exact account of every woman he has delivered since he left me, amounting to 593, with the circumstances of their cases, he assures me that he has not lost one from the pu[50]erperal fever, nor from any other cause where he alone was concerned. Many præternatural, laborious, and flooding cases had occurred among this number; yet they were all managed according to the plan above recommended; and particularly not a single patient had lain in bed twenty-four hours together after delivery. One instance that he relates of the good effects of suffering the shoulders to make their proper turns, in preventing after pains, is so remarkable, that I shall give it at length in his own words.

'A farmer's wife in our neighbourhood applied to 'me in February 1773, desiring me to attend her in 'her labour, which she expected in a few weeks. She

'told me she had had six children, and had very easy 'labours; but that she had suffered so much with 'after-pains for a fortnight, that it rendered her 'unable to leave her room at the end of six weeks. I 'attended her in a [51] natural good labour. As soon 'as the head of the child was born, I observed the 'shoulders to make their turn, having my left hand 'under the child's chin, and the right hand on the 'occiput. In the position I was determined to wait 'till a pain came, which was seventeen minutes: this 'forced the child as far as the hips. The next pain, 'which was in about two minutes, totally expelled the 'child.

'I have since attended her, and only waited fourteen 'minutes after the head was born. She never after had 'a single after-pain, but was about her business in 'three weeks.'

My worthy friend Mr. Aikin, whose character and abilities are well known to the public, and others of my pupils, as well as many other practitioners, have also favoured me with their testimony to the success of the several points of practice recommended in the foregoing treatise.

[52]ADDITIONAL CASES

Case XVI

Jonathan Kershaw's wife of Haven near Greenacre Moor, in the parish of Oldham, about thirty years of age, being at the full period of gestation, had the misfortune on the second of July 1770, to fall upon a

pot vessel, which broke, cut through her cloaths, and made an horizontal wound in the abdomen, about a quarter of an inch above the navel, and about two inches in length. Labour pains immediately succeeded and she was delivered in about thirteen hours of a living child. I saw her in about fifty hours after the accident, and found that a piece of the o[53]mentum as large as my fist, had protruded itself through the wound, and lay upon the outside of the abdomen; it had a very putrid appearance, discharged a bloody serum, and smelt very offensively. The omentum was wounded, and a triangular piece of pot was found within it. I spread it open carefully, to examine whether any portion of the intestines were protruded along with it, and being satisfied that there was not, I applied a ligature round it close to the abdomen, and then cut off all that part beyond the ligature. In about a fortnight the ligature came away, and in less than a month the wound was perfectly healed without the least inconvenience, and she has since had another living child.

REMARK

This case, as far as one instance will go, proves that the omentum in puerpe[54]ral women is not particularly liable to inflammation, suppuration, and mortification; but in those cases where there has been that appearance upon dissection, it has been owing to acrid matter being absorbed and deposited upon it, and not to any original disease in the part produced by pregnancy or parturition.

Case XVII

In the Postscript to my account of the puerperal fever, I think I have sufficiently refuted the doctrine of those physicians, who have imagined that the disorder is equally common in all places. The following case will, I believe, be a sufficient answer to those who have maintained the opposite opinion, alledging that it is only generated in the metropolis, and never exists in other parts of the kingdom. We shall here see it in a [55] very malignant state, make its appearance in the town of Manchester.

A B. of Manchester, a remarkably healthy woman, who had hitherto scarcely experienced any disorder, was in the beginning of her first pregnancy afflicted with pains in her stomach, attended with vomitings; but during the last four months she was perfectly well, at least as free from complaints as one can be supposed to be in her situation.

On the 25th of October 1772, she was delivered of two children by a careful surgeon in this town, who conducted the labour with great propriety. Her labour, which continued about fifteen hours, was rather slow than difficult. The first-born child presented itself in a natural position; the second with the buttocks foremost; but, as the infant was very small, it was easily brought into the world in that posture. The placenta [56] was expelled naturally. For a day or two, the patient imagined she perceived a large lump, which seemed to roll about within her belly, and which she sometimes endeavoured to fix by

holding her hand upon it. This, however, gave her no pain; and after the second day, this symptom, which arose from the womb's not having sufficiently contracted itself, entirely vanished. The lochia flowed plentifully, her milk was secerned in proper quantity, and she gave suck to her children.

On the third day, she complained of a little pain in her belly; and as she had not had a stool since her delivery, a glyster and some opening medicines were administered, which procured a plentiful evacuation; and in the evening she took an opiate.

On the fourth day she was pretty easy.

[57] On the fifth she complained of pain and soreness in the lower part of the abdomen, which grew so troublesome, that it was thought necessary to repeat the opiate; and some small doses of emetic tartar were administered, which puked her, procured a few stools, and brought on a gentle perspiration. Her lochia and milk began to diminish, she got out of bed for the first time in the evening, but was so sick that she could not bear up, and was immediately put into bed again. Her pulse was very quick, and her disorder seemed to be increasing.

In the morning and evening of the sixth, she took a little rhubarb and nitre.

On the ninth day I was desired to visit her by the gentleman who had delivered her. I was informed that she had seldom sat up in bed, and only once been out of it. The house was situated in the most crowded part of the town. The room [58] she lay in was

about six yards in length, and five in breadth; but it was very low, its height not exceeding six feet and a half. It was not, however, remarkably hot, though a fire, at which the victuals of the family were dressed, was kept constantly in it: the fire was at a considerable distance from the bed. The nurse and both children lay in the same bed with the patient, and her husband lay in another in the same room. The surgeon who was employed, very prudently ordered the door, and sometimes a window, to be opened in the day-time; but his directions were not complied with, and when he had himself opened them, they were immediately shut upon his leaving the chamber. She had every day wine, though in no great quantity, put into her gruel, and no acids were given her. She complained of frequent motions to make water; of pain, soreness, tension, and swelling in the lower part of the abdomen. Upon [59] examining the parts with the greatest attention, I found that her complaints were confined to the region of the uterus and bladder; and that the swelling was perfectly circumscribed; and that neither the pain, the swelling, nor the soreness, extended beyond the half way from the pubis to the navel; or was there at that time any reason to apprehend, either from the nature of the symptoms, or the touch, that there was any inflammation, or other disorder, either in the stomach, omentum, or intestines, if we except a gentle soreness with which it was affected.

The gentleman who was employed for her, introduced a catheter into her bladder, that he might discover

whether it was distended with water; but it did not contain above three or four spoonfuls. Upon pressing the catheter against the fundus of the bladder, she complained that *there* was the seat of [60] her disorder. She was thirsty, but her tongue was very little altered from its natural state; it having neither a white nor a brown fur upon it. She had very little milk, and her lochia were reduced to a small sanious discharge. She had neither rigors, vomitings, nor eruptions. The heat of her skin, and the excessive quickness of her pulse, which beat no less than 160 times in a minute, were her only alarming symptoms. I several times examined her pulse by a stop watch, when she was neither fluttered nor in great pain, and constantly found them the same. From this single circumstance, upon my first visit I prognosticated that she could not recover. Small doses of emetic tartar, which gently puked her, were administered several times to day. Butter-milk possets and butter-milk were ordered for her common drink, and in the evening she got out of bed.

[61] On the 10th her pulse beat only 128 times in a minute, her belly was rather softer, she had several stools, and seemed no worse in any respect. On the 11th, the lower part of the belly about the uterus was softer, but the whole abdomen began to swell. Her pulse beat 160 times in a minute. She had many stools; and salt of wormwood, with the juice of lemons, was frequently given in the act of fermentation. Upon the 12th the whole abdomen was much distended,

and the pain, which now extended itself to her sides, was so violent, that her cries alarmed the neighbours. That we might procure her a little ease, we were obliged to apply an anodyne fomentation to her belly, and to give her opiates mixed with ipecacuanha. She had a great many stools, and her tongue had a white fur upon it.

Her looseness stopped, and she had [62] not much pain, upon the 13th, but her belly was greatly distended. Her pulse was so quick as hardly to be counted. Her extremities were cold. She retained her senses to the very last moment; and expired about nine o'clock in the evening.

DISSECTION

The surgeon who attended her, opened her body the next day, in the presence of another surgeon, and two young gentlemen of the profession. My being called to a distance prevented my attendance; but he told me that the appearances were exactly correspondent to those which he had observed in London, in subjects who had died of the true malignant puerperal fever.[1] The omen[63]tum was almost wholly

1. The great variety of the appearances on dissection, and the little certainty as yet obtained from it with regard to the principal seat of the disease, are fully shewn in the following passage.

'In about forty women whom I have had opportunity of inspecting, all or some of the following appearances have been observed. The uterus or its appendages were in a state of inflammation and sometimes mortified. The os uteri, and that part of the uterus to which the placenta had adhered, had generally a morbid appearance. Small abscesses were formed in the substance of the uterus, or in the cellular membrane which connects it to the adjacent parts. The bladder was

dissolved: detached pieces floated in the abdomen, which contained almost three pints of thick purulent matter, and of serous fluid. The stomach and intestines were much inflated, and the intestines were [64] glued to each other, and to the peritonæum; but in such a manner that they might be pulled asunder without tearing their coats. They appeared to be pasted together by a kind of gluten; and inflammation seemed not to have been in the least the cause of their adhesion. Some of the smaller vessels seemed to be a little turgid with blood. He did not any where observe the appearances of inflammation or mortification. The left ovary was rather larger than the other, but perfectly sound. The womb, which not contracted to its usual size, was capable of receiving an hen's egg; and upon cutting it open, its sides were found to be three-quarters of an inch in thickness. The inward coat appeared to be entirely black, as if in a state of mortification; but upon wiping it clean, the blackness was found to be nothing more than the putrid lochia and deciduous membrane,

inflamed. The omentum was very thin, irregularly spread, and in a state of inflammation. The intestines were inflamed, chiefly in the peritonæal coat, adhered in many places, and were much inflated. Inflammatory exsudations, and serum extravasated in the cavity of the abdomen, have been found in various quantities; but these were in a less degree when the patient had laboured under a long continued purging. Large flakes of coagulable lymph were found in the cavity of the abdomen, which have been often mistaken for dissolved portions of omentum. It must indeed be acknowledged, that the information, acquired in this search, has not been equal to the care or to the assiduity with which it has been made.'

Denman on the Puerperal Fever.
Second Edit., p. 29 and 30.

which had covered the whole inside of the uterus. [65] There was not the least appearance of laceration, or of any other external injury.

REMARKS

The situation of the patient's apartment, which was in the closest part of the town; the remarkable lowness of the room; the vitiated state of the air from the breath of so many persons; the horizontal position of the patient for many days together; her complaint, at first, confined to the lower part of the abdomen, and afterwards gradually rising higher; the quickness of her pulse in the beginning of the disease, and its beating four days before death 160 times in a minute; are circumstances which merit the utmost attention. So quick a pulse is seldom produced by inflammation, when unattended with depositions or absorptions of matter, though accompanied with the most violent pain. The most inflammatory gout, when pro-[66] ductive of the most excruciating torture; the most violent paroxysms of the stone, either in the kidneys or the bladder, or in the passage from one of them to the other; the excessive and almost intolerable torture arising from a gall stone passing through the ducts; the pain and inflammation in the pleurisy, the iliac passion, or the cholera morbus;[1] nay even those arising

1. 'The first attack of this fever is sometimes so violent, that in many respects, it resembles the *cholera morbus;* for the pain, sickness, and burning heat in the stomach and bowels, are almost the same; and the bile, in great profusion, is discharged upwards and downwards; though in the first, the *pulse is more quick and weak.*'

Leake, p. 47.

from the strangulation of the intestines, or omentum, or from any of the principal operations in surgery, as lithotomy, amputation, &c. (except where a mortification is come on and the patient is in the agonies of death) do not occasion so rapid a pulsation. A pulse so excessively quick is seldom pro[67]duced by pain, though accompanied by inflammation. A quick pulse is however the pathogonomonic symptom of all absorptions, whether they be produced by ulcers in the lungs, in the joints, or in any other part of the body; though unattended by pain or inflammation. I have known an excessive acceleration of the pulse proceed from a small wound in the joint of the knee, attended with absorption, where the patient was perfectly well immediately before the accident.

Case XVIII

Being called to Ashton-under-Line (a town in this neighbourhood) to see a patient, as I was talking with Mr. Greaves, an ingenious young surgeon of that place, a corpse with a white sheet thrown over the coffin was carrying through the streets to be buried. Concluding from this circumstance, that it was a woman who had died in child[68] bed, I enquired into the nature of her disorder. He informed me she died of a puerperal fever. Her name was Ann Leek, a poor woman, about 35 years of age. The particulars were as follow. He was called to her in the middle of the

eighth month of her third pregnancy, for a flooding which was so violent that the blood ran through not only the bed, but even the floor, into the room below; but by taking plentifully of the bark, she recovered and went to her full time, when she was delivered by a midwife on the 16th of November, 1772, and had a very easy natural labour.

He heard no more of her till the 23d, when he found her with a very quick pulse, brown dry tongue, and delirious. She had a great number of petechiæ; and her stools, which came from her involuntarily, were very offensive. Her friends informed him that [69] she was seized a few days after her delivery with a shivering fit, succeeded by vomiting and looseness, and complained much of her belly. She died upon the 24th, being the ninth day from her delivery.

Upon enquiring into the most probable causes of her death, Mr. Greaves informed me that the room she lay in was intolerably offensive, owing to a vessel containing about four gallons, kept there as a reservoir for all the urine of the family, which was emptied once a week for the use of the dyers, but was never cleaned.

Case XIX

About five years ago, Mrs. W——, who was then twenty one years of age, was delivered of her first child, as she sat upon the knee of an assistant. [70] She was confined to her bed till the fifth day after her delivery, and during this time scarcely ever sat up.

On the fifth and sixth days she was raised, that her bed might be made, but was not able to continue up longer than was necessary for that purpose; and she was afterwards confined to her bed eight successive days without getting out of it. During this time she was attacked by a violent fever, attended with miliary eruptions, both of the white and red kind. Of this fever she perfectly recovered; but upon returning to her usual exercise, she was seized with a *prolapsus vaginæ*, which, except in the latter end of her pregnancies, hath ever since continued.

On the seventh of January, 1773, she was delivered, by a gentleman of this town, of her third child, as she sat upon the knee of an assistant. He informed me that, as soon as the child was born, [71] he pulled gently at the navel string; and that a smart pain came on, which totally inverted the uterus, forcing it down, to the size of his hand, through the labia, with the placenta still adhering to its fundus. The nature of her case immediately struck him; but to be more perfectly satisfied, after making an apology for so uncommon a request, he called for a candle, and found he was not mistaken in his conjecture. He carefully separated the placenta from the uterus with his fingers, and attempted, but in vain, to restore the womb to its pristine state. He was only able to push it up into the vagina. In this situation she was put to bed, and he came to me to desire I would visit her along with him. In about an hour after this I saw her, and found the uterus about the size of a large new-born infant's head,

totally inverted, and lying within the vagina. She was in great pain, had lost much blood, was very faint, and no pulse could be felt [72] in either arm. I attempted to return the uterus to its place by pushing at its fundus; but as this was attended with great pain, brought on a violent forcing down, and was accompanied with much loss of blood, I for a while desisted, from an apprehension that she might die under my hands. I now prescribed her an opiate, with a few drops of vitriolic elixir.

Upon further consideration of her case, I was of opinion that the body of the uterus was too large to pass through the neck, which was a little contracted; therefore in a few minutes after she had taken the opiate and vitriolic drops, without waiting for their effects, I hastened to reduce it by the following mode of practice, which I believe to be entirely new, and which had never before occurred to me. I grasped the body of it in my hand, and held it there for some time, in order to lessen its bulk by compression. [73] As I very soon perceived that it began to diminish, I persevered; and soon after made another attempt to reduce it, by thrusting at its fundus. It began to give way. I continued the force till I had perfectly returned it, and had insinuated my hand into its body. I now withdrew my hand a little and endeavoured to close the os uteri by assisting it in its contraction with my fingers. It was no sooner reduced, than the pulse in her wrist began to beat. She recovered as fast as we could wish, and without a single alarming circumstance.

REMARKS

HAD not the idea occurred to me of its being practicable to diminish the uterus by compression, I am satisfied I should not have been able to have replaced it; and though my first attempt to reduce it without compression distressed my patient greatly, yet the method [74] I afterwards pursued, seemed to be attended with little pain.

Several circumstances might probably contribute to this accident; the *prolapsus vaginæ*, with which the patient had been sometime troubled—the position she was in at the time of delivery—the sudden delivery of the child—the adhesion of the placenta exactly to the bottom of the uterus—the insertion of the funis in the very centre of the placenta, and the pulling at the navel string too soon after the birth, before the uterus had sufficiently contracted itself, and whilst the woman was nearly in an upright situation.

Cases of inverted uteri are not very frequent; and the recoveries of patients who have met with such accidents have been extremely uncommon. The reason they so seldom occur, may probably with justice be attributed to the [75]necessity of so many concurring circumstances. The proper means of returning the inverted uterus not being before discovered, and the want of speedy assistance, may be the reasons why so few have recovered. I know but of two written instances of recovery after a total inversion; one is mentioned by Ruysch, Obs. 10, where the wife

of a certain Jew was the patient, the other by Dr. Harvie in his *Practical Directions*, p. 21. Le Motte, indeed, l. 5. c. 10. Obs. 384, mentions another case in which the patient recovered, but in this he does not seem to think that there was a total inversion.

My father informed me that he was many years ago sent for to a woman in this situation, about ten miles from hence; but she died before his arrival. She had been delivered as she sat upon the knee of an assistant, and the midwife had by pulling at the navel string too soon after [76] the delivery, totally inverted the uterus. About eight years ago I was sent for myself, and in a case exactly similar. The woman lived about a mile from hence, and as I was then from home, Mr. Aikin, at that time my pupil, went in my stead. The patient died as he entered the chamber. He found the inverted uterus beyond the labia, and the placenta still adhering.

Those who would wish to see more histories of these truly alarming cases, may consult Ruysch, Obs. 10 and 26; Mauriceau, Obs. 355 and 685; Giffard's Cases in Midwifery, case 176, p. 421; Chapman, case 29. p. 197; La Motte, Lib. 5, chap. 10, Obs. 384; Smellie's Works, vol. 3, Collection 44, cases 3 and 4, p. 494 and 495; and Dr. Hunter's MSS. Lectures on the Gravid Uterus.

This case likewise helps to prove that [77] prolapsuses of the vagina, or bearings down, as they are commonly called, are not occasioned by too early getting out of bed after delivery; as this woman in her first lying-in

never got out of bed till the fifth day, and scarcely ever sat up in it during that time; nay she was totally confined to her bed fourteen days, except on the fifth and sixth days that she was raised, whilst her bed was made; and yet when she returned to her usual exercises, she perceived the *prolapsus vaginæ*. It must therefore have been owing to some other cause, probably to the upright position during labour, and the too hasty delivery of the shoulders.

Case XX

Hannah Norbury of Blakely, a small village, about three miles from Manchester, aged 27, was delivered of her first child, by a midwife[78] in the neighbourhood, on the 4th of March 1773, as she sat upon the knee of an assistant. She had an easy natural labour, and the placenta came away without difficulty. She was of a corpulent habit, but had enjoyed pretty good health, except a trifling cough which she had been troubled with for about eighteen months; and at the latter end of her pregnancy she had been for the most part costive. During her labour she complained of the head ache which continued afterwards. She was kept in a continual sweat and never once sat up in bed, till the third day in the afternoon, when she got out of it, for a little while; the child was applied to her breasts this day for the first time, the lochia were almost stopped, and she had a shivering fit in the

evening succeeded by a burning and a sweating fit. On the fourth day her breasts were a little troublesome, but by rubbing with a little oil they grew easy. On [79] the 5th. had another shivering fit. On the 6th. had a stool which was the first she had had since the day before her delivery. On the 8th. she was seized with a bilious vomiting, and a looseness ; her urine was high coloured and muddy, and she coughed much in the night. She had a delirium, but her husband observed that it was only at such times when she lay upon her back, but that when she lay upon her side she was quite free from it.

On the 9th, she remained much in the same state. In the evening I was applied to, and ordered her tartar emetic and calx of antimony, which puked her, and eased her stomach and bowels.

On the 10th, I saw her for the first time. Her pulse were small and beat 176 strokes in a minute ; her voice faultered ; she was sometimes de[80]lirious her eyes were red and looked wild, and she said her head ached. She did not make any complaint of her belly ; but when I laid my hand upon it below the navel, in any part of the hypogastric region, it was so exceedingly tender that she could scarce bear me to touch it, but about the navel, and above it, she made not the least complaint though I pressed ever so hard. Her bed was placed within half-a-yard of the fire ; and her friends informed me that she had sweated much since her delivery, that her only food had been meal or groat gruel, given warm with a little wine in it, and once

it was mixed with a small quantity of malt liquor. I ordered her the salt of wormwood and juice of lemons in the act of effervescence, and gave her leave to drink butter-milk posset, which she had before asked for, but it had been denied. The lochia were stopped except a little brown water. She had not much milk, but the child conti[81]nued to suck her. On the 11th, I saw her again: her pulse were so small and quick as not to be counted, she had convulsive spasms, and was not able to speak or take any medicines. She had only one stool this day, and no vomiting.

On the 12th, stools and urine came from her involuntarily, and she died in the evening.

REMARKS

I MUST observe that the room in which this woman lay had no door to it, nor were there any curtains to the bed; therefore I believe there could not be much putrid air except what was confined under the bed cloaths. The mismanagement chiefly consisted in keeping her in an horizontal position, for three days successively, without once sitting up in bed—in permitting her to be seven days without a stool—in her [82] being too much heated by the fire, too many bed cloaths, and drinking warm liquids with wine in them; in sweating too much, and not being allowed any cooling acescent liquors.

DISSECTION

Upon opening the abdomen about fourteen hours after death, there was not the least disagreeable smell: the omentum was large, perfectly sound, spread regularly over the intestines, and of a natural colour, except a little of the lower edge which was not so bright a yellow. The intestines shewed not the least sign of inflammation, and were perfectly sound: they were not glued to one another, nor was there any matter or watery fluid floating in the cavity of the abdomen. The uterus was something larger than my fist, of a natural colour but flaccid; upon cutting it open the inside ap[83]peared black, but I easily wiped off the blackness, which seemed to be nothing more than some remains of the spongy chorion and some particles of blood. Her friends being very averse to any further examination, I was obliged to desist.

Case XXI

Ann Worthington, aged twenty-six, was delivered of her first child, by a gentleman of pretty considerable practice, on Friday the 16th of June, 1775, about noon. He informed me that in attempting to bring away the placenta, the navel string broke: he afterwards tried to extract it by the manual operation, but found the uterus so contracted in the middle like an hour-glass, that he thought it most prudent [84] to desist for the present, and gave her an opiate. He desired I might

be called in, and I saw her about five hours after her delivery. I found she had flooded much; her pulse were small, and she was very pale with the loss of blood; but the flooding had now much abated, and she seemed tolerably easy. I therefore did not examine her, nor order any thing, but to continue to take an acid julep, which had been prescribed her; to drink cooling subacid liquors; to keep the doors and windows open, as the weather was excessively hot; and to sit up in bed as often as possible, if she did not flood. The next morning she got out of bed, which was made and her linen changed, and a glyster was injected.

In about 30 hours after delivery, as there was no sign of the placenta coming away, and the weather was remarkably hot, I was afraid of its growing [85] putrid, and producing a putrid fever; I therefore examined her for the first time, in order to assist in bringing it away; but found that the contraction still remained, and the placenta was quite out of my reach without using violence. The lochia were in proper quantities, and not offensive.

On the second night, she had a severe shivering fit, succeeded by a hot one, and terminated by a sweat. In the morning she took a vomit of ipecacuanha in powder, and got up out of bed.

On the third day had another rigor, got out of bed again in the evening, and staid up an hour. Being costive, and complaining much of her head, and her belly being swelled and tender, with her pulse 120, an aperient mixture was prescribed, but that not

operating, she took two grains of calomel, and a quarter of [86] a grain of tart. emet. which gave her several stools, and omitted the mixture.

The next day being the fourth, when the lochia grew very offensive, warm water[1] was injected per vaginam ; she took antimonial powders, got out of bed twice a day, staid up at least an hour every time, and often sat up in bed.

On the fifth day had another rigor : took salt of wormwood and juice of lemons in the act of effervescence every three hours ; took every day great quantities of butter-milk, oranges and lemons, and the doors and windows were kept constantly open.

[87] On the sixth day she got out of bed three times, staying up an hour and half each time ; continued the neutral mixture, and the antimonial powders, which kept the intestinal canal sufficiently open, having several loose stools every day.

On the seventh night a few pains came on, and she parted with the placenta, which was very putrid, except one part, which seemed not to have been long separated from the uterus.

On the eighth day she was much better. On the tenth a diarrhœa came on, which on the eleventh was very severe ; she therefore took a grain of ipecacuanha,

1. In the puerperal fever whenever the lochia are offensive, warm water should be frequently injected into the uterus by means of a syringe which has a thick syphon and a little curved ; and I am inclined to think that such injections would be very serviceable in all puerperal fevers, if properly performed.

and a few grains of rhubarb, which puked her, and her looseness abated.

On the twelfth a slight preparation of the bark was ordered; and on the [88] thirteenth[1] she said she had no complaints, except too much milk in her breasts; she kept out of bed most of the day. From that time she perfectly recovered.

1. In all the cases where I have mentioned the number of days from delivery, it must be understood that the day of delivery is included. I thought it necessary to take notice of this circumstance, as I find some Authors observe a contrary method.

THE END

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